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National Potato Germplasm Evaluation and Enhancement Report, 2000

Seventy-First Annual Report by Cooperators

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January 2002

National Potato Germplasm Evaluation and Enhancement Report, 2000

Seventy-First Annual Report by Cooperators

Compiled and edited by Kathleen G. Haynes

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Beltsville Agricultural Research Center
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Beltsville, MD 20705

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United States Department of Agriculture,
Agricultural Research Service,
Beltsville, MD and Presque Isle, ME

K.G. Haynes, K.O. DeLong, D. Fleck, K. Frazier, M. Bragg, B. Adams, and C. Lagasse

Objectives: The USDA potato breeding program at Beltsville has four main objectives: (1) to develop improved, pest-resistant germplasm and varieties; (2) to develop improved germplasm and varieties for processing; (3) to enhance germplasm for specific characteristics relating to pest resistance, yield, environmental stress, human nutrition and consumer acceptance; and, (4) to conduct statistical genetic studies in potato breeding.

Breeding: The crossing program is conducted in the greenhouses at BARC every year. This year was unique in that the plants flowered profusely for about two weeks and then abruptly quit. In past years, the plants have normally flowered for two to three months. Hybridizations in the greenhouse at BARC were made among round, white-skinned, tetraploid *S. tuberosum* selections and cultivars with either processing or fresh market potential and resistance to late blight, bacterial wilt, or Fusarium dry rot. True seeds were obtained from 131 combinations. Hybridizations were also made among red-skinned and/or yellow-fleshed tetraploid selections and cultivars, and true seeds were obtained from 30 combinations. Bulk pollinations were made within the diploid *S. phureja*-*S. stenotomum* population with resistance to early blight to advance the population another cycle. Crosses were also made among 2n pollen producing *S. phureja*-*S. stenotomum* and late blight resistant selections of *S. okadae* and *S. microdontum*, resulting in seeds from 53 combinations. Pollinations among tetraploid *S. tuberosum* and diploid *S. phureja*-*S. stenotomum* were made, and true seeds were obtained from 48 round white and 26 red skin/yellow-flesh combinations. Open-pollinated seed from the 72 clones comprising the diploid late blight resistant *S. phureja*-*S. stenotomum* population were collected from the field in Presque Isle, ME for the next breeding and evaluation cycle.

Germplasm Enhancement Efforts: Eighty-eight high specific gravity *S. tuberosum* x *S. phureja*-*S. stenotomum* hybrids were evaluated for internal heat necrosis and specific gravity in NC (Dr. Craig

Yencho), VA (Dr. Susan Sterrett) and NJ (Dr. Melvin Henninger). Segregation for both traits was noted; 27 of the 4x-2x hybrids were unstable for incidence of internal heat necrosis across environments either before or after environmental heterogeneity was removed, 17 were unstable for specific gravity (Data not shown - manuscript in preparation). Identification and quantification of carotenoids in a number of intense yellow-fleshed diploid *S. phureja*-*S. stenotomum* clones was determined by HPLC. Total carotenoid content in the yellow-flesh diploids was 3 to 13 times higher than in Yukon Gold (Data not shown - manuscript slated for publication in the Nov. 2001 issue of the J. Amer. Soc. Hort. Sci.). The work on mapping late blight and early blight resistance in a diploid *S. phureja*-*S. stenotomum* population continued (Dr. Ivan Simko-BARC; and, Dr. Barbara Christ, Stefano Costanzo and Ruofang Zhang, Penn State). A study on combining ability for resistance to Fusarium dry rot was begun in cooperation with PA (Dr. Barbara Christ and Ramanjulu Valluru).

Yield and Processing Evaluations: Yield trials for round whites (BARC Tables 1-4), specialty market types (BARC Tables 5-6), and russets (BARC Table 7), were conducted at Echo Lake. These were planted in a randomized complete block design with four replications of 25 hills on May 17, 2000. Plants were spaced 9 inches within the row for all trials except the russet trial, in which plants were spaced 12 inches within the row. After harvest, tubers from each plot were graded, specific gravity was determined by the weight in air and weight in water method, and the ten largest tubers from each plot were cut to determine the presence of hollow heart. Tuber samples were stored at 50°F, 45°F, and 40°F. Tubers were processed out of 50°F, 45°F, 40°F, and following a three week reconditioning period of 70°F from 40°F storage during January and February for the round white, specialty market and russet trials. For each combination of temperature and processing date, five tubers from each plot were processed (20 samples per clone).

Tuber samples from all yield trials except the russets were processed into potato chips by taking 1/16-inch slices from the cross section of each tuber. Slices were rinsed in water and placed on paper towels to remove excess moisture. Chips were then fried at 340°F in Primex vegetable shortening until bubbling ceased.

Among the most advanced round, white-skinned

selections in the program (BARC Table 1), B0178-34, B0766-3, B1598-4 and B1709-6 had the best chip color. Atlantic produced darker chips than usual this year. Previous selections identified with chipping potential, such as B0564-8, B0564-9, and B1240-1 continue to show promise for the processing industry at other locations, but were darker than desired at the Presque Isle location this year. B0178-34 has since been dropped from the program for growth cracking problems, and susceptibility to common scab and Fusarium dry rot. B0564-8, B0564-9, B0766-3 and B1240-1 have been entered into the Foundation Seed Program at Uihlein Farm. Seed of B0564-8 will be available from certified seed growers in Maine for the 2001 growing season. B0564-8 is currently the selection with the most potential. It has a very attractive appearance, chips well from the field and from early-season storage, has moderately high specific gravity, and has very little internal heat necrosis in the mid-Atlantic states. B0564-9 is a full-sib of B0564-8. Although it shares many of the same qualities as B0564-8, the one grower who had it reported some problems with storage rot. B0766-3 is an excellent chipper out of 45°F storage and following reconditioning. It has some tolerance to common scab. There continues to be interest in this selection, especially in the chipping area of central Aroostook County. B1240-1 is another potential chipping selection, although it chips erratically. This year it did not chip acceptably from any temperature and storage length combination. Last year it chipped into February out of both 50°F and 45°F. It has some tolerance to a number of diseases, which may interest organic gardeners.

Only one of the newer selections (B1873-6) showed some potential as a chipper, but it yielded only 80% of Atlantic's yield. However, the data need to be interpreted cautiously this year, since even Atlantic failed to chip acceptably.

For fresh market consideration, B1806-8, B1826-1, B1829-5, and B1871-1, were especially attractive and the specific gravities ranged from low to moderate. B1871-1 yielded as well as Atlantic.

Among the specialty market selections in the program, B0811-4, B1495-6, and B1521-2 show promise for the red-skinned, creamer market with more than 65% of the tubers less than 2.25 inches in diameter. B1523-4, a red-skinned selection, is in the Foundation Seed Program at Uihlein Farm and has a nice size distribution with not very many < 1 7/8 or >

3 1/4 inches in diameter. B1145-2 is another red-skinned selection in the Foundation Seed Program at Uihlein Farm. It is being evaluated for the roaster market. The yellow-fleshed selection B1752-5 has been attractive with fairly good yields, but hollow heart is a problem. B1816-5 and B1951-5 are two purple-skinned selections that are also yellow-fleshed.

The best processing russet-skinned selections were Amey and B1409-2. Both had good yields, high specific gravity, and acceptable fry color out of 45°F from February storage.

Disease Evaluations: Several named cultivars and advanced selections were evaluated for their reaction to common scab in *Streptomyces scabies* infected plots on Aroostook State Farm, Presque Isle, Maine (BARC Table 8). The scab plot was planted June 2, 2000 and harvested September 13, 2000. The experiment was planted as a randomized complete block design consisting of two replications. Each plot consisted of four hills spaced 9 inches within the row, in rows 36 inches apart. All tubers were harvested and scored individually for percent surface area covered using the Horsfall-Barratt rating scale (0 = 0%, ... 12 = 100%) and for the type of lesion (1 = superficial, < 10 mm in diameter, 2 = superficial, > 10 mm in diameter, 3 = raised, < 10 mm in diameter, 4 = raised, > 10 mm in diameter, 5 = pitted of all sizes). These individual scores were then summed over plots and divided by 12 times the number of tubers to create an area index (AI) or five times the number of tubers to create a lesion index (LI). Clones were then grouped using cluster analysis on mean AI and LI into highly resistant, resistant, intermediate, and susceptible categories (See Goth *et al.*, Plant Disease 77:911-914.) Two of the 4x-2x hybrids were among the most resistant selections, along with Viking and B1145-2. Scab pressure was very severe in the plot this year. Even Superior, which is generally considered to be resistant, fell in the susceptible category.

Acknowledgements: In addition to the regular Federal people associated with the program, we could not harvest and look at all the material we do without the cooperation of numerous State scientists, their technicians and sometimes, their students, and industry representatives. We are indebted to all of them for their role in furthering the aims of the potato breeding program: Greg Porter, Stan Greaves, Mike Corey, Bobby Sirois, Joe Sieczka, Don Halseth,

Barry Melching, Barb Christ, Mike Peck, Stefano Costanzo, Steve Molnar, Mel Henninger, Rikki Sterrett, Craig Yenko, Mark Clough, Pete Weingartner, Chad Hutchinson, Marion White, Steve O'Hair, and Dave Kelly.

We are also indebted to the following certified seed growers who continue to work with us as we try to bring new cultivars to market: Arthur Devoe, Tom Devoe, Charles Upton, and Bob Leavitt.

BARC Table 1. Yield, tuber size distribution, and quality characteristics of round whites harvested 120 days after planting at Echo Lake in 2000.

Clone	% Stand ¹	Mkt cwt/A	% Mkt	Tuber Size Distribution							SG ²	HH ³	TGA ⁴
				< 1 7/8"	1 7/8 - 2 1/4"	2 1/4 - 3 1/4"	3 1/4 - 4"	> 4"					
Atlantic	100	350	93	6.8	39.7	51.1	2.4	0.0	90	2	9.07		
B0178-34	100	332	95	4.9	25.4	59.1	10.5	0.0	92	5	9.63		
B0564-8	96	352	95	4.1	31.7	57.9	5.6	0.6	89	1	7.36		
B0564-9	100	337	91	3.5	19.5	57.1	14.7	5.2	86	3	8.16		
B0766-3	98	288	94	5.3	32.2	52.2	9.3	1.0	85	5	9.21		
B1240-1	99	364	96	4.4	25.6	63.0	7.0	0.0	82	0	7.97		
B1339-2	100	257	81	18.7	51.1	30.2	0.0	0.0	88	0	12.95		
B1497-22	100	317	95	3.7	19.3	61.8	13.9	1.5	81	0	5.83		
B1591-1	100	328	91	9.2	37.9	48.9	4.0	0.0	94	0	25.57		
B1598-4	98	317	93	6.9	36.4	49.3	7.4	0.0	76	0	14.71		
B1624-22	97	279	97	3.3	30.0	57.1	9.5	0.0	77	7	8.43		
B1709-6	96	216	94	6.3	39.2	51.6	2.9	0.0	81	0	10.73		
Monona	100	298	97	3.0	23.3	63.0	10.8	0.0	69	0	10.85		
LSD (0.05)		47							3				

¹ Percent stand on June 26, 2000

² 1.0 omitted

³ Number of tubers with hollow heart out of 40

⁴ Total glycoalkaloid content $\mu\text{g} / 100 \text{ g}$ fresh weight

BARC Table 1. Continued.

Temperature	50°F	45°F	40°F	40° - 70°F	50°F	45°F	40°F	40° - 70°F
Date	01/09	01/11	01/12	01/16	02/05	02/09	02/12	02/07
Clone	Chip ⁴	Spt ⁵	Chip	Spt	Chip	Spt	Chip	Spt
Atlantic	7.5	S	7.8	S	10.0	O	8.2	M
B0178-34	6.8	S	6.8	S	10.0	O	8.1	S
B0564-8	7.8	O	7.7	S	10.0	O	8.6	S
B0564-9	8.0	S	8.2	S	10.0	O	9.0	S
B0766-3	6.6	S	7.1	S	9.7	O	7.2	M
B1240-1	7.6	O	7.9	O	10.0	O	8.6	S
B1339-2	8.5	S	8.2	S	10.0	O	8.6	M
B1497-22	7.9	L	8.4	L	10.0	S	9.7	S
B1591-1	7.8	M	8.3	S	10.0	O	8.8	S
B1598-4	6.5	O	7.3	S	10.0	O	8.5	S
B1624-22	7.1	O	7.6	S	10.0	O	8.1	S
B1709-6	6.3	O	6.8	O	10.0	O	8.4	S
Monona	6.6	O	7.2	S	10.0	O	7.9	S

⁵ Chips -- 1-7 satisfactory

⁶ Sprout - O : no sprouts

S : < 0.5"

M : 0.5" - 1.5"

L : 1.5" - 2.5"

VL : > 2.5"

BARC Table 2. Yield, tuber size distribution, and quality characteristics of round whites harvested 121 days after planting at Echo Lake in 2000.

Clone	% Stand ¹	Mkt cwt/A	% Mkt	Tuber Size Distribution						SG ²	HH ³	TGA ⁴
				< 1 7/8"	1 7/8 - 2 1/4"	2 1/4 - 3 1/4"	3 1/4 - 4"	> 4"				
Atlantic	100	356	93	5.8	33.4	53.2	6.5	1.1	90	4	12.06	
B1801-6	96	345	94	4.6	21.3	56.5	16.2	1.4	81	3	24.12	
B1806-8	100	309	93	6.3	35.0	53.3	4.8	0.7	83	1	17.69	
B1826-1	90	298	95	5.4	20.7	58.8	15.1	0.0	78	0	12.39	
B1829-5	99	305	91	9.0	37.1	48.7	5.2	0.0	82	1	12.06	
B1870-3	99	340	95	3.9	23.0	57.9	14.4	0.8	72	0	7.05	
Superior	100	322	94	5.3	36.4	51.9	5.8	0.7	79	0	9.94	
LSD (0.05)		31							10			

1 - 6 See BARC Table 1

BARC Table 2. Continued.

Temperature	50°F		45°F		40°F		40° - 70°F		50°F		45°F		40°F		40° - 70°F	
Date	01/09		01/12		01/16		01/16		02/05		02/09		02/12		02/07	
Clone	Chip ⁴	Spt ⁵	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt
Atlantic	7.8	S	8.3	S	10.0	O	8.2	M	8.1	VL	8.2	L	10.0	S	8.0	L
B1801-6	9.0	S	9.4	S	10.0	O	9.8	S	9.5	L	9.8	VL	10.0	S	9.8	S
B1806-8	8.0	S	8.1	O	10.0	O	8.8	S	8.6	L	8.6	L	10.0	S	9.0	S
B1826-1	7.2	L	8.0	M	10.0	O	7.3	S	8.8	VL	8.3	VL	10.0	S	7.6	L
B1829-5	8.1	O	8.5	O	10.0	O	9.0	S	8.6	M	8.4	M	10.0	S	8.9	M
B1870-3	9.0	VL	10.0	VL	10.0	O	10.0	S	10.0	VL	10.0	VL	10.0	S	10.0	M
Superior	7.9	M	8.4	S	10.0	O	9.8	M	8.7	VL	8.6	VL	10.0	S	9.3	M

BARC Table 3. Yield, tuber size distribution, and quality characteristics of round whites harvested 124 days after planting at Echo Lake in 2000.

Clone	% Stand ¹	Mkt cwt/A	Tuber Size Distribution							SG ²	HH ³	TGA ⁴
			% Mkt	< 1 7/8"	1 7/8 - 2 1/4"	2 1/4 - 3 1/4"	3 1/4 - 4"	> 4"				
Atlantic	99	364	94	4.2	31.2	54.2	8.5	1.9	92	8	11.06	
B1870-17	98	376	92	4.6	24.6	49.8	18.0	3.0	75	1	8.59	
B1871-1	99	369	96	4.4	27.2	62.7	5.7	0.0	74	0	7.73	
B1873-4	99	226	92	8.3	35.5	56.2	0.0	0.0	82	0	15.66	
B1873-6	95	291	91	9.0	47.2	43.8	0.0	0.0	88	0	11.34	
B1880-4	91	316	96	4.1	32.2	59.4	4.4	0.0	80	1	13.47	
B1880-6	97	325	90	10.5	45.9	40.6	3.0	0.0	78	0	6.68	
B1884-9	95	380	94	3.5	19.7	56.4	17.8	2.5	85	0	9.04	
B1919-9	94	364	94	6.3	33.3	56.5	3.8	0.0	82	0	19.74	
Snowden	100	230	73	26.5	51.9	21.6	0.0	0.0	98	0	16.54	
LSD (0.05)		48							7			

¹⁻⁶ See BARC Table 1

BARC Table 3. Continued.

Temperature	50°F	45°F	40°F	40° - 70°F	50°F	45°F	40°F	40° - 70°F
Date	01/09	01/12	01/16	01/16	02/05	02/09	02/12	02/07
Clone	Chip ⁴	Spt ⁵	Chip	Spt	Chip	Spt	Chip	Spt
Atlantic	8.0	S	8.4	S				
B1870-17	8.9	L	9.3	L				
B1871-1	8.0	S	8.2	S				
B1873-4	7.9	L	8.6	L				
B1873-6	6.4	S	7.1	S				
B1880-4	7.6	O	8.4	S				
B1880-6	7.9	S	8.8	S				
B1884-9	7.9	S	7.8	S				
B1919-9	9.0	S	9.5	S				
Snowden	6.5	S	7.1	S				

BARC Table 4. Yield, tuber size distribution, and quality characteristics of round whites harvested 124 days after planting at Echo Lake in 2000.

Clone	% Stand ¹	Mkt cwt/A	Tuber Size Distribution							SG ²	HH ³	TGA ⁴
			% Mkt	< 1 7/8"	1 7/8 - 2 1/4"	2 1/4 - 3 1/4"	3 1/4 - 4"	> 4"				
Atlantic	100	357	92	7.9	40.9	46.7	3.9	0.6	90	4	12.45	
B1927-14	98	389	96	3.8	19.3	54.2	22.2	0.5	76	0	8.60	
B1944-2	100	297	88	12.1	57.9	30.0	0.0	0.0	82	0	8.13	
B1964-4	92	297	95	5.4	25.5	55.4	13.7	0.0	89	17	17.25	
Bel Chip	100	329	91	5.7	27.6	50.8	13.0	3.0	88	5	13.96	
LSD (0.05)		31							12			

¹ - ⁶ See BARC Table 1

BARC Table 4. Continued.

[illegible]

BARC Table 5. Yield, tuber size distribution, and quality characteristics of specialty market potatoes harvested 124 days after planting at Echo Lake in 2000.

Clone	Mkt		Tuber Size Distribution								SG ²	HH ³	TGA ⁴
	% Stand ¹	cwt/A	% Mkt	< 1 7/8"	1 7/8 - 2 1/4"	2 1/4 - 3 1/4"	3 1/4 - 4"	> 4"					
B0811-4	100	284	88	12.2	53.7	33.5	0.6	0.0	87	0	2.01		
B0984-1	100	296	94	5.6	28.0	57.5	8.8	0.0	84	0	6.34		
B1145-2	100	319	92	7.8	37.2	48.8	5.7	0.6	68	2	4.67		
B1425-9	100	407	93	7.4	33.0	53.5	6.0	0.0	98	1	5.64		
B1491-5	98	295	87	13.0	43.6	40.7	2.7	0.0	73	0	2.23		
B1495-6	100	254	88	12.3	54.9	32.2	0.6	0.0	76	0	5.85		
B1521-2	100	307	79	20.8	53.8	21.5	3.4	0.5	71	5	4.42		
B1523-4	100	406	90	9.7	38.9	49.5	1.9	0.0	80	0	6.17		
B1529-1	100	271	93	6.5	30.3	55.8	7.3	0.0	77	0	4.35		
B1752-5	90	292	94	5.8	25.7	58.6	9.9	0.0	70	4	12.80		
B1758-3	99	323	95	5.2	39.2	52.3	3.2	0.0	69	0	11.58		
B1758-4	99	309	93	6.6	39.8	53.6	0.0	0.0	75	0	13.90		
B1763-4	100	283	89	11.0	44.9	43.8	0.3	0.0	75	0	5.76		
Red Pontiac	100	481	92	4.4	13.7	48.8	29.4	3.7	66	10	3.35		
Yukon Gold	100	352	96	3.1	14.5	71.9	9.3	1.2	86	2	7.11		
LSD (0.05)		65							9				

¹⁻⁶ See BARC Table 1

BARC Table 5. Continued.

Temperature		50°F		45°F		40°F		40° - 70°F		50°F		45°F		40°F		40° - 70°F	
Date		01/08		01/11		01/12		01/16		02/05		02/12		02/12		02/08	
Clone	Chip ⁵	Spt ⁶	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Comments
B0811-4	7.4	S	7.7	O	10.0	O	8.2	S	8.0	M	7.5	M	10.0	O	8.1	S	red skin, yellow flesh
B0984-1	8.5	O	8.4	O	10.0	O	9.3	S	8.2	S	8.8	S	10.0	S	9.0	S	red skin
B1145-2	9.3	S	9.3	S	10.0	O	10.0	S	9.3	L	9.7	L	10.0	S	9.8	S	red skin
B1425-9	8.2	L	8.8	VL	10.0	S	9.0	M	8.9	VL	8.7	VL	10.0	S	8.3	L	yellow flesh
B1491-5	9.8	S	10.0	O	10.0	O	10.0	S	9.8	M	9.8	S	10.0	O	9.6	S	red skin, yellow flesh
B1495-6	8.8	O	8.9	O	10.0	O	9.4	S	8.9	M	8.8	M	10.0	O	8.7	S	red skin
B1521-2	8.3	O	9.0	S	10.0	O	9.8	S	9.1	S	8.9	S	10.0	O	9.6	S	red skin
B1523-4	9.8	L	10.0	L	10.0	O	10.0	L	9.9	VL	10.0	VL	10.0	S	9.9	L	red skin
B1529-1	8.0	M	8.8	L	10.0	O	9.2	S	8.9	VL	9.1	VL	10.0	S	8.9	S	purple skin
B1752-5	8.3	S	8.4	S	10.0	O	10.0	S	8.9	M	9.0	M	10.0	S	10.0	S	yellow flesh
B1758-3	8.7	S	9.0	S	10.0	O	9.8	S	9.1	M	9.4	M	10.0	S	10.0	S	red skin
B1758-4	8.8	S	9.1	S	10.0	O	10.0	S	9.3	L	9.4	M	10.0	S	10.0	S	red skin
B1763-4	8.8	M	9.2	S	10.0	O	9.4	S	8.7	L	8.8	M	10.0	O	8.8	S	purple skin
Red Pontiac	10.0	S	9.8	S	10.0	O	10.0	S	10.0	L	9.9	VL	10.0	S	10.0	S	red skin
Yukon Gold	8.9	O	9.3	O	10.0	O	9.5	S	9.3	S	10.0	S	10.0	S	9.5	S	yellow flesh

BARC Table 6. Yield, tuber size distribution, and quality characteristics of specialty market potatoes harvested 121 days after planting at Echo Lake in 2000.

Clone	% Stand ¹	Mkt cwt/A	Tuber Size Distribution						SG ²	HH ³	TGA ⁴
			< 1 7/8"	1 7/8 - 2 1/4"	2 1/4 - 3 1/4"	3 1/4 - 4"	> 4"				
B1816-5	100	318	10.8	50.4	38.7	0.0	0.0	81	0	8.36	
B1950-8	97	281	4.9	49.9	45.2	0.0	0.0	85	0	8.53	
B1951-5	85	319	6.6	32.4	54.5	6.5	0.0	80	0	14.28	
B1952-2	98	281	3.6	30.7	62.5	3.2	0.0	85	0	10.49	
B1952-4	100	264	15.9	46.8	34.0	2.8	0.6	95	0	8.88	
Yukon Gold	87	299	3.5	16.8	64.5	15.2	0.0	82	1	6.89	
LSD (0.05)		46						2			

¹⁻⁶ See BARC Table 1

BARC Table 6. Continued.

Temperature	50°F		45°F		40°F		40° - 70°F		50°F		45°F		40°F		40° - 70°F	
	Chip ⁵	Spt ⁶	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt
Date	01/08		01/11		01/16		01/16		02/05		02/12		02/12		02/08	
Clone	Chip ⁵	Spt ⁶	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt
B1816-5	7.3	O	7.1	S	9.9	O	8.4	S	7.5	M	7.3	M	9.6	O	8.1	S
B1950-8	8.3	O	7.5	O	10.0	O	7.3	M	7.8	S	7.8	S	9.7	O	7.8	M
B1951-5	10.0	L	9.6	L	10.0	S	9.6	M	9.7	VL	9.8	VL	10.0	S	9.3	M
B1952-2	8.6	VL	8.0	VL	10.0	O	8.9	S	8.9	VL	9.0	VL	10.0	S	8.4	M
B1952-4	7.0	M	6.5	M	9.3	O	7.0	M	7.3	VL	7.1	VL	9.0	S	7.5	L
Yukon Gold	9.1	O	9.4	O	9.9	O	9.4	S	9.7	VL	9.9	S	10.0	S	9.9	S

BARC Table 7. Yield, tuber size distribution, and quality characteristics of russets harvested 121 days after planting at Echo Lake in 2000.

Clone	% Stand ¹	Mkt cwt/A	Tuber Size Distribution							SG ²	HH ³	TGA ⁴
			% Mkt	< 2 oz	2 - 6 oz	6 - 10 oz	10 - 16 oz					
B1409-2	100	362	96	4.4	25.7	62.1	7.8	89	1	6.84		
B1649-8	97	323	96	4.0	31.8	60.7	3.5	74	0	6.65		
B1933-3	90	283	86	13.8	52.9	32.4	0.9	85	0	3.69		
Amey	100	340	96	4.3	34.3	58.6	2.9	90	0	5.87		
Russet Burbank	98	267	84	15.6	54.7	29.4	0.3	81	0	6.45		
LSD (0.05)		67							2			

¹⁻⁴ See BARC Table 1

BARC Table 7. Continued.

Temperature	50°F	45°F	40°F	40° - 70°F	50°F	45°F	40°F	40° - 70°F
Date	01/17	01/17	01/17	01/17	02/13	02/13	02/13	02/13
Clone	Fry ⁵	Spt ⁶	Fry	Spt	Fry	Spt	Fry	Spt
B1409-2	2.4	S	2.3	S	5.0	O	3.2	S
B1649-8	3.7	VL	3.9	VL	5.0	S	4.7	S
B1933-3	3.3	L	3.5	M	5.0	O	4.0	M
Amey	2.5	S	2.3	S	5.0	O	3.5	S
Russet Burbank	3.3	S	3.0	O	5.0	O	4.1	S

⁵ Fry: 1 - 3 = satisfactory

⁶ See BARC table I

BARC Table 8. Average surface area index (AI)¹ and lesion index (LI)² for potato clones evaluated in *Streptomyces scabies* infested soil on Aroostook Farm in 2000 by clustering on mean AI and LI³.

Clone	AI	LI	Clone	AI	LI
Highly Resistant			Susceptible		
B1145-2	0.13	0.12	Aracy	0.44	0.84
BTD0024-8	0.20	0.19	Avon	0.40	0.81
BTD0054-3	0.22	0.18	B0178-34	0.50	0.95
Viking	0.26	0.22	B0564-9	0.36	0.91
Resistant			B0984-1	0.38	0.72
B0811-4	0.22	0.47	B1240-1	0.39	0.80
B1491-5	0.22	0.33	B1316-5	0.38	0.88
B1521-2	0.25	0.38	B1322-19	0.40	0.88
B1523-4	0.26	0.46	B1327-6	0.45	0.86
B1828-4	0.32	0.32	B1339-2	0.48	0.94
B1873-4	0.23	0.33	B1409-2	0.37	0.80
B1880-6	0.24	0.29	B1425-9	0.42	0.85
BTD0059-2	0.17	0.34	B1463-1	0.38	0.76
Ontario	0.25	0.40	B1497-22	0.49	0.85
Pike	0.19	0.47	B1497-33	0.38	0.81
Russet Burbank	0.26	0.44	B1591-1	0.39	0.93
Wauseon	0.27	0.41	B1598-4	0.42	0.81
Intermediate			B1624-22	0.46	0.94
Alpha	0.34	0.59	B1709-6	0.46	0.94
Amey	0.32	0.48	B1712-18	0.51	0.96
B0564-8	0.38	0.53	B1752-5	0.58	1.00
B0766-3	0.35	0.69	B1758-4	0.28	0.84
B1102-3	0.34	0.70	B1763-4	0.37	0.77
B1492-12	0.29	0.60	B1801-3	0.43	0.91
B1495-6	0.33	0.54	B1801-6	0.54	0.94
B1529-1	0.35	0.61	B1804-6	0.47	0.93
B1649-8	0.32	0.60	B1806-8	0.43	0.94
B1722-5	0.34	0.63	B1816-5	0.46	0.94
B1758-3	0.28	0.70	B1825-5	0.47	0.72
B1870-17	0.35	0.68	B1826-1	0.47	0.84
B1872-8	0.36	0.65	B1829-5	0.40	0.88
B1873-6	0.30	0.66	B1834-1	0.40	0.82
			B1856-10	0.42	0.72
			B1870-3	0.42	0.80
			B1871-1	0.37	0.75
			B1872-1	0.40	0.91

BARC Table 8. Continued

Clone	AI	LI	Clone	AI	LI
Intermediate			Susceptible		
B1878-7	0.37	0.68	B1876-10	0.45	0.95
Boone	0.37	0.61	B1880-4	0.39	0.83
Islander	0.34	0.67	B1884-9	0.38	0.71
Onaway	0.36	0.63	Elba	0.35	0.86
Plymouth	0.30	0.53	Erie	0.42	0.79
Yukon Gold	0.37	0.58	Essex	0.50	0.90
			Hampton	0.53	0.94
			Green Mt.	0.48	0.80
			Raritan	0.54	0.89
			Shepody	0.46	0.81
			Superior	0.41	0.78

¹ Surface area index was calculated as:

$$\sum_{i=1}^n (\text{Surface area infected}) / (12 \times \text{number of tubers})$$

$$0 \leq \text{AI} \leq 1.00$$

² Lesion index was calculated as:

$$\sum_{i=1}^n (\text{lesion severity}) / (5 \times \text{number of tubers})$$

$$0 \leq \text{LI} \leq 1.00$$

³ Mean AI and LI were subjected to cluster analysis using the unweighted pair-group method by arithmetic averages (UPGMA).

EAST REGIONAL POTATO TRIALS

**Gregory A. Porter, Professor of Agronomy,
University of Maine, Orono, ME.**

Cooperators in 2000: Florida; Chad Hutchinson, J. Marion White and Pete Weingartner; Maine, Gregory Porter and Paul Ocaya; New Brunswick, Henry DeJong and Peter Scott; North Carolina, Craig Yencho and Mark Clough; New Jersey, Mel Henninger; Long Island, New York, Joe Sieczka; Upstate New York, Don Halseth; Ohio, Matt Kleinhenz and David Kelly; Pennsylvania, Barbara Christ and William Lamont; Prince Edward Island, Walter Arsenault; Quebec, Pierre Turcotte and Gilles Hamel; and Virginia, Rikki Sterrett.

Twenty-seven trials were conducted in eight states and three Canadian Provinces. Seventeen named varieties and 13 numbered clones were available to the cooperators. Seed for all clones and varieties were grown by the Maine State Seed Potato Board at Porter Farm. Seed-pieces were prepared, cut, and suberized by the staff at the University of Maine Agricultural and Forest Experiment Station in Presque Isle, Maine. Cultural practices were generally similar to those used by commercial growers near each location.

Objectives: The objectives of this regional project are (1) to develop pest-resistant, early maturing, long-dormant varieties that will process from cold storage; (2) to evaluate new and specialty varieties developed in the Northeast; (3) to determine climatic effects on performance to develop predictive models for potato improvement; and (4) determine heritability/linkage relationships and improve the genetic base of tetraploid cultivated varieties.

Results: Total yield, marketable yield, specific gravity, tuber size, tuber defects, chip color results, boil and bake results are presented in East Region Trial Tables 1 to 5. For round whites, Kennebec and NY112 had the highest total yields at most locations. Atlantic and AF1615-1 also produced high yields at most locations. NY112 was the clear leader in marketable yields. Atlantic, Kennebec, and AF1615-1 also provided relatively high marketable yields. Atlantic, Snowden, and W1313 had the highest specific gravities at most sites. Yukon Gold, B0766-3, NY112, and W1442 also had specific gravity readings that averaged above 1.080. AF1437-1, AF1758-7, and AF1763-2 averaged below 1.070. Eva, Katahdin, Kennebec, Yukon Gold, B0766-3,

and NY112 sized well in most trials. Eva, Katahdin, Kennebec, Yukon Gold, AF1437-1, AF1615-1, AF1758-7, AF1763-2, and B0766-3 had a high incidence of external defects, averaging over 10% in the 2000 trials. Atlantic, Katahdin, Yukon Gold, and W1242 had high incidence of hollow heart. Eva, Snowden, AF1668-60, B0766-3, NY115, and W1242 chipped well in most 2000 tests, while NY112 produced good chips out of the field, but not consistently from storage. Katahdin, Superior, Yukon Gold, and AF1758-7 scored well in most boiling tests and Eva, Katahdin, Kennebec, Yukon Gold, AF1615-1, B0766-3, and NY112 scored well in baking tests.

CO86218-2 was the only red-skinned test line in NE-184 trials during 2000. Yields averaged just slightly above those of Dark Red Norland. Specific gravity averaged similar to the standard lines and tuber size was fairly small. It had relatively low incidence of external defects and hollow heart.

Russet Burbank, Russet Norkotah #3, and Russet Norkotah #8 had the highest average total yields of the russeted and long-white types. Russet Norkotah #3 and Russet Norkotah #8 had the highest average marketable yields. All of the russeted and long-white types had moderate to high specific gravity. Russet Norkotah's was the lowest, averaging 1.077. Russet Burbank, Russet Legend, Umatilla Russet, and A84118-3 had particularly high specific gravity. Russet Norkotah-3, Russet Norkotah-8, Shepody, and A84180-8 produced the largest tubers. Russet Norkotah-3, Shepody, Umatilla Russet, A84118-3, and A84180-8 had greater than 10% external defects. Gem Russet, Russet Burbank, Russet Norkotah, Russet Norkotah #3, and Russet Norkotah #8 had hollow heart problems during 2000. Most of the russet clones provided mixed results in the boiling tests conducted during 2000, while Russet Burbank and A84118-3 had good baking scores.

East Region Trial Table 1. Total yields (cwt/acre) for 17 named varieties and 13 numbered clones grown at 15 locations in the Eastern United States and Eastern Canada.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NB	NC	NJ	NY1 ²	NY2 ²	OH	PA	PEI	QU1 ³	QU2 ³	VA	Mean
<u>Round Whites</u>																
Atlantic	329	375	348	424	435	204	344	469	470	202	522	444	423	342	450	385
Eva (NY103)	318	292	290	401		161	337		502		367	330	394	342	353	340
Katahdin	338	354	320	365	433	144	402	462	431	223	519	440	391	384	350	375
Kennebec	321	457	401	414	542	226	471		484	242		495	362	550	355	414
Snowden	318	353	198	419	371	215	380		454	176	584		337	408	399	355
Superior	285	260	337	273	392	174	343	399	333	171	521	418	266	375	372	329
Yukon Gold	332	329	367	329	430	128	278	440	407	224		306	414	422	330	334
AF1437-1	351	282	303	281		189					540		357	391	431	347
AF1615-1	350	419	335	399	427	205	412	431	425		561	414	428	377	399	399
AF1668-60		188				145							255	183	326	219
AF1758-7	352	359	390	236	450	162	279	543	461	160		336	381	417	329	347
AF1763-2	386		382	371	421	134				148		437	314	466	368	343
B0766-3	292	326	303	368		174	354		449	136	413	397	288	386	340	327
NY112	390	444	372		507	253	468		478	234	539	501	431	438	404	420
NY115	302	334	348	452	432	151	325	488	315	189	378	370	308	355	398	342
W1242	252	246		397	385	216	344		489	190		361	317	368	397	330
W1313	310	375		341	486	209	373		463	236			320	400	352	351

East Region Trial Table 1. Continued.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NB	NC	NJ	NY1 ²	NY2 ²	OH	PA	PEI	QU1 ³	QU2 ³	VA	Mean
<u>Red Clones</u>																
Chieftain	332		397			245		538	459	215			472	374	442	386
Dark Red Norland	299		306	307		175	365	351	351	150			225	365	231	284
CO86218-2	276		240			194	454	362	396	187			321	291	300	316
<u>Russets/Long Whites</u>																
Gem R. (A8495-1)	256		197	167	383		436	396	413			301	345	319		321
R Burbank	338		343		406				531			408	334	400		394
R Legend	136		270													203
R Norkotah	327		303	312	397		493	348	427			344	323	212		349
R Norkotah-3	333		310	324	487		528		479			386	372	399		402
R Norkotah-8	303		307		450		525		471			386	380	281		388
Shepody	322		334	314					458				313	376		353
Umatilla Russet	342		362													352
A84118-3	224		190									352	284	239		258
A84180-8	288		217	355												287

¹Trials were conducted in three Maine locations, Presque Isle (ME1), Exeter (ME2), and St. Agatha (ME3).

²The two trial locations in New York were Riverhead, Long Island (NY1), and Freeville (NY2).

³There were two trial locations in Quebec, Canada; Lyster (QU1) and Rawden (QU2).

Additional Note: Some states (ME, NJ, NY) had several clones tested in two or more trials per location. When this occurred the data presented are the average over trials for that location.

East Region Trial Table 2. Marketable yields (cwt/acre) for 17 named varieties and 13 numbered clones grown at 15 locations in the Eastern United States and Eastern Canada.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NB	NC	NJ	NY1 ²	NY2 ²	OH	PA	PEI	QU1 ³	QU2 ³	VA	Mean
<u>Round Whites</u>																
Atlantic	303	240	298	398	390	168	308	431	399	171	481	430	368	237	381	334
Eva (NY103)	297	212	222	365		134	318		393		333	315	267	258	319	289
Katahdin	288	117	169	343	386	114	369	387	390	172	480	425	286	305	303	306
Kennebec	266	205	176	390	454	189	418		332	173		483	305	426	330	326
Snowden	294	279	150	396	337	162	339		405	149	490		293	304	337	303
Supertor	268	210	290	241	361	141	316	339	298	123	470	407	219	331	331	291
Yukon Gold	292	174	205	302	370	97	254	402	342	177		293	345	336	299	276
AF1437-1	325	194	161	211		165					481		294	287	405	280
AF1615-1	292	250	291	375	368	143	377	361	356		483	395	341	306		334
AF1668-60		151				109							198	146	282	177
AF1758-7	325	292	362	210	423	96	248	436	413	117		324	372	372	276	305
AF1763-2	357		295	348	370	85				78		400	255	336	313	284
B0766-3	282	197	243	341		130	332		386	99	365	389	265	327	323	287
NY112	378	368	313		456	229	440		393	192	467	493	407	404	384	379
NY115	270	269	282	423	378	107	292	426	275	128	330	322	255	290	357	293
W1242	222	152		367	345	185	319		413	153		335	269	271	330	280
W1313	286	286		329	435	163	324		402	165			274	313	277	295

East Region Trial Table 2. Continued.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NB	NC	NJ	NY1 ²	NY2 ²	OH	PA	PEI	QU1 ³	QU2 ³	VA	Mean
<u>Red Clones</u>																
Chieftain	309		362			181		511	402	171			384	319	373	335
Dark Red Norland	278		246	286		109	332	293	309	118			142	260	111	226
CO86218-2	257		181			88	400	266	310	162			244	229	168	246
<u>Russets/Long Whites</u>																
Gem R. (A8495-1)	220		172	132	312		361	256	297			217	241	245		245
R Burbank	319		300		302				341			299	205	263		290
R Legend	121		247													184
R Norkotah	303		287	288	341		436	179	313			282	244	153		283
R Norkotah-3	284		292	300	448		386		315			362	323	347		340
R Norkotah-8	275		288		402		427		351			359	288	217		326
Shepody	224		171	293					287				289	275		257
Umatilla Russet	273		307													290
A84118-3	189		151									297	209	170		203
A84180-8	224		165	327												239

¹Trials were conducted in three Maine locations, Presque Isle (ME1), Exeter (ME2), and St. Agatha (ME3).

²The two trial locations in New York were Riverhead, Long Island (NY1), and Freeville (NY2).

³There were two trial locations in Quebec, Canada; Lyster(QU1) and Rawdon (QU2).

Additional Note: Some states (ME, NJ, NY) had several clones tested in two or more trials per location. When this occurred the data presented are the average over trials for that location.

East Region Trial Table 3. Specific gravities (1.0 excluded) for 17 named varieties and 13 numbered clones grown at 15 locations in the Eastern United States and Eastern Canada.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NB	NC	NJ	NY1 ²	NY2 ²	OH	PA	PEI	QU1 ³	QU2 ³	VA	Mean
<u>Round Whites</u>																
Atlantic	94	95	99	79	86	72	83	94	96	93	94	113			84	91
Eva (NY103)	85	80	77	71		59	70		78		77	90			68	75
Katahdin	85	79	81	70	74	61	66		81	77	73	94			66	75
Kennebec	77	88	84	66	82	62	67		83	83		104			68	78
Snowden	110	96	103	82	97	71	82		95	88	87				83	90
Superior	76	78	86	76	77	71	70	76	80	81	80	90			64	77
Yukon Gold	97	86	91	74	77	67	78	85	88	88		91			68	82
AF1437-1	64	59	62	58		51					61				50	58
AF1615-1	93	83	84	68	75	55	69	82	84		79	99				79
AF1668-60		80				66									70	72
AF1758-7	73	64	75	57	62	46	56	65	69	66		83			52	64
AF1763-2	69		68	62	57	52				70		79			56	64
B0766-3	93	82	87	78		70	75		89	88	81	102			78	83
NY112	99	83	94		86	66	75		88	84	85	100			77	85
NY115	82	78	86	70	76	64	69	84	81	82	77				69	77
W1242	95	89		77	85	70	84		92	80		102			79	85
W1313	107	98		84	97	77	94		103	93					88	93

East Region Trial Table 3. Continued.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NB	NC	NJ	NY1 ²	NY2 ²	OH	PA	PEI	QU1 ³	QU2 ³	VA	Mean
<u>Red Clones</u>																
Chieftain	72		69			59		68	75	74					61	68
Dark Red Norland	65		67	63		58	62	66	73	73					57	65
CO86218-2	71		72			53	72	68	73	77					63	69
<u>Russets/Long Whites</u>																
Gem R. (A8495-1)	99		86	70	73		81	83	87			90				84
R Burbank	93		86		81				90			94				89
R Legend	85		95													90
R Norkotah	88		83	66	66		71	76	74			93				77
R Norkotah-3	91		83	62	73		72		84			101				81
R Norkotah-8	90		83		66		72		77			90				80
Shepody	93		88	77					87							86
Umatilla Russet	94		84													89
A84118-3	98		82									91				90
A84180-8	89		76	69												78

¹Trials were conducted in three Maine locations, Presque Isle (ME1), Exeter (ME2), and St. Agatha (ME3).

²The two trial locations in New York were Riverhead, Long Island (NY1), and Freeville (NY2).

³There were two trial locations in Quebec, Canada; Lyster (QU1) and Rawdon (QU2).

Additional Note: Some states (ME, NJ, NY) had several clones tested in two or more trials per location. When this occurred the data presented are the average over trials for that location.

East Region Trial Table 4. Percentage yield of tubers in the 2.5 to 4 inch size range for round whites and reds and russets greater than eight ounces for 17 named varieties and 13 numbered clones grown at 12 locations in the Eastern United States and Eastern Canada.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NB	NC	NJ	NY1 ²	NY2 ²	PA	PEI	VA	Mean
<u>Round Whites</u>													
Atlantic	27	51	38	74	67	17	36	60	53	48	72	64	48
Eva (NY103)	56	54	51	68		43	57		60	50	62	81	58
Katahdin	47	65	54	71	70	15	55	60	59	59	76	70	57
Kennebec	66	68	74	77	76	28	56		63		81	81	66
Snowden	20	35	17	68	61	14	28		29	21		63	36
Superior	45	45	36	29	68	17	45	45	39	47	67	69	46
Yukon Gold	63	69	61	71	76	15	46	67	56		71	75	60
AF1437-1	43	51	44	49		17				47		83	48
AF1615-1	28	51	38	62	71	2	36	31	58	36	57		43
AF1668-60		47				9						70	42
AF1758-7	44	47	49	48	80	8	33	58	65		71	64	52
AF1763-2	30		31	58	54	11					51	67	43
B0766-3	47	62	46	80		35	66		65	51	82	88	63
NY112	54	71	29		75	41	54		64	47	76	85	60
NY115	17	34	21	73	66	8	23	37	55	40	27	77	39
W1242	24	27		74	71	25	46		55		53	59	48
W1313	18	47		57	61	10	23		37			50	38

East Region Trial Table 4. Continued.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NB	NC	NJ	NY1 ²	NY2 ²	PA	PEI	VA	Mean
<u>Red Clones</u>													
Chieftain	36		44			10		71	51			69	47
Dark Red Norland	23		13	44		4	46	25	26			16	25
CO86218-2	32		45			4	47	24	27			30	32
<u>Russets/Long Whites</u>													
Gem R. (A8495-1)	43		50	7	48		59	18	33		21		35
Russet Burbank	47		44		45				22		23		36
Russet Legend	26		40										33
Russet Norkotah	46		57	40	55		62	12	31		18		40
Russet Norkotah-3	55		60	47	71		71		58		59		60
Russet Norkotah-8	58		69		72		67		58		43		61
Shepody	77		71	60					57				66
Umatilla Russet	54		48										51
A84118-3	49		60								46		52
A84180-8	67		74	47									63

¹Trials were conducted in three Maine locations, Presque Isle (ME1), Exeter (ME2), and St. Agatha (ME3).²The two trial locations in New York were Riverhead, Long Island (NY1), and Freeville (NY2).³There were two trial locations in Quebec, Canada; Lyster (QU1) and Rawdon (QU2).

Additional Note: Some states (ME, NJ, NY) had several clones tested in two or more trials per location. When this occurred the data presented are the average over trials for that location.

East Region Trial Table 5. Average (sites x years) percent tuber defects and hollow heart, chip color, and bake and boil scores for 17 named and 13 numbered round-white clones. Number of comparisons (sites x years) are in parentheses.

Variety	Year(s)	% Tuber Defects -----					----- Chip Color ² -----					Recon- ditioned ⁴	Boil Score ⁵	Bake Score ⁵	
		Total ¹	Sun- burn	Mis- shapen	Growth cracks	Hollow Heart	Out of Field ³	50-55°F Storage	45°F Storage						
Round Whites															
Atlantic	2000	7.5(13)	5.4(10)	0.9(10)	0.6(10)	3.3(13)	0.30	5.21	1.02	3.31	1.23	211			
Atlantic	11	8.2(84)	3.8(78)	2.0(81)	1.3(84)	6.0(107)	23 19 6	47 15 19	12 3 16	14 9 10	19 10 11	21 7 2			
Eva (NY103)	2000	11.4(9)	6.3(7)	2.1(7)	1.5(7)	0.6(7)	210	401	201	112	120	200			
Eva (NY103)	5	12.4(32)	6.2(28)	2.6(28)	0.7(30)	1.3(47)	12 20	18 9 9	7 0 6	3 2 5	13 5 2	8 2 1			
Katahdin	2000	16.2(11)	9.8(8)	1.5(8)	0.3(8)	4.6(11)	010	0 2 5	0 0 2	0 1 2	3 2 0	310			
Katahdin	11	10.7(76)	6.0(70)	1.3(70)	0.6(72)	4.6(103)	7 7 14	4 14 33	0 1 23	1 2 16	20 19 1	15 13 3			
Kennebec	2000	20.4(10)	11.9(7)	2.7(7)	2.1(7)	0.0(9)	001	2 2 4	0 0 3	0 0 4	2 2 1	310			
Kennebec	11	17.3(62)	7.5(58)	4.1(58)	2.9(58)	3.0(86)	6 4 16	17 17 34	4 1 21	4 1 20	22 13 5	12 14 4			
Snowden	2000	5.7(8)	3.1(5)	1.0(5)	0.1(5)	0.3(8)	200	4 2 1	1 1 1	4 1 1	110	100			
Snowden	9	4.8(42)	2.3(38)	1.4(38)	0.3(38)	1.6(58)	20 3 1	29 9 9	8 3 4	10 2 2	9 5 6	7 2 3			
Superior	2000	7.2(11)	1.9(9)	2.0(9)	0.4(9)	0.7(11)	200	0 4 3	0 0 2	0 1 2	410	211			
Superior	11	5.3(65)	1.3(60)	2.4(60)	0.8(62)	1.3(96)	18 8 17	12 18 27	1 4 18	0 5 12	22 12 6	14 12 4			
Yukon Gold	2000	12.6(11)	5.9(8)	1.3(8)	0.4(9)	2.5(12)	010	1 2 4	0 0 2	0 0 3	210	200			
Yukon Gold	11	9.3(41)	2.8(37)	2.1(37)	0.7(38)	5.2(60)	3 1 4	5 6 23	0 1 8	0 0 7	13 8 1	9 3 0			
AF1437-1	2000	17.3(5)	6.2(3)	0.5(3)	1.5(3)	0.0(5)	011	2 1 1	0 0 1	0 0 1	010	010			
AF1437-1	4	13.8(22)	2.3(19)	1.3(19)	5.6(20)	0.3(34)	4 1 2	7 9 3	0 0 6	0 0 4	10 2 1	313			
AF1615-1	2000	10.6(8)	8.9(7)	1.1(7)	0.5(7)	0.0(9)	110	1 3 3	0 0 2	0 0 2	211	210			
AF1615-1	4	11.3(25)	6.2(23)	1.6(23)	0.4(24)	1.1(38)	4 3 0	4 6 9	1 0 4	0 0 4	9 3 4	5 2 1			
AF1668-60	2000	7.9(3)	9.2(1)	1.7(1)	2.6(1)	0.0(2)	110	100	0 0 0	0 0 0	000	000			
AF1758-7	2000	11.5(10)	2.8(7)	3.7(7)	0.2(7)	0.6(9)	200	0 0 5	0 0 0	0 0 1	300	011			
AF1763-2	2000	13.9(6)	2.4(3)	1.7(3)	0.8(3)	0.0(5)	011	0 0 4	0 0 1	0 0 2	011	00 2			
B0766-3	2000	11.2(10)	5.2(7)	2.3(7)	0.7(7)	0.3(10)	300	501	110	311	011	100			
B0766-3	4	9.8(27)	3.4(23)	2.4(23)	0.6(23)	2.8(39)	1100	20 7 2	5 2 3	6 3 1	10 4 3	6 2 1			
NY112	2000	6.7(9)	3.9(6)	0.8(6)	0.1(6)	0.3(9)	210	4 3 1	1 0 2	3 1 2	2 3 0	310			
NY112	2	5.0(16)	3.2(12)	0.5(12)	0.1(12)	1.2(21)	510	9 5 1	1 0 3	3 2 2	5 3 0	510			
NY115	2000	6.5(11)	2.7(8)	0.4(8)	0.1(8)	0.5(11)	300	5 2 1	1 1 1	3 2 1	201	0 2 0			
NY115	2	5.4(18)	3.0(14)	0.4(14)	0.1(14)	0.4(23)	500	11 3 1	1 1 2	3 3 1	501	2 2 0			
W1242	2000	9.3(8)	7.1(5)	0.7(5)	2.3(5)	8.9(7)	300	3 2 0	0 0 1	310	111	011			
W1313	2000	8.1(7)	5.6(4)	0.6(4)	0.4(4)	0.0(6)	1 2 0	2 3 0	0 1 1	2 2 1	110	1 0 0			

East Region Trial Table 5. Continued.

Variety	Year(s)	----- % Tuber Defects -----				----- Chip Color ² -----				Boil Score ⁵	Bake Score ⁵	
		Total ¹	Sun- burn	Mis- shapen	Growth cracks	Hollow Heart	Out of Field ³	50-55°F Storage	45°F Storage			Recon- ditioned ⁴
Red Clones												
Chieftain	2000	4.5(7)	0.3(4)	0.7(4)	1.1(4)	0.4(7)	0.00	0.02	0.00	0.01	1.00	0.00
Chieftain	11	4.4(34)	1.0(30)	1.1(32)	1.2(31)	0.9(47)	1.02	0.215	0.03	0.01	11.21	4.20
Norland, Dk Red	2000	4.9(8)	0.3(5)	1.2(5)	0.7(5)	0.0(7)	0.00	0.11	0.00	0.10	2.00	1.00
Norland, Dk Red	8	4.6(25)	0.5(21)	1.4(21)	0.9(21)	0.8(37)	2.14	1.87	0.02	0.10	4.21	3.21
CO86218-2	2000	6.0(9)	0.6(6)	1.5(6)	1.4(6)	0.4(8)	0.10	0.01	0.00	1.00	0.10	0.00
Russets/Long Whites												
Gem R. (A8495-1)	2000	9.9(6)	1.6(6)	5.8(6)	0.8(6)	13.3(6)	0.00	2.12	0.11	0.02	1.12	0.30
Gem R. (A8495-1)	2	9.0(10)	2.1(10)	4.9(10)	0.5(10)	6.6(14)	0.00	4.23	0.12	0.03	4.12	2.30
Russet Burbank	2000	8.6(4)	1.2(4)	6.3(4)	0.8(4)	3.8(4)	0.00	0.23	0.02	0.11	2.11	2.10
Russet Burbank	11	16.5(48)	1.3(48)	14.1(48)	1.1(44)	8.4(56)	0.10	1.622	0.015	0.113	19.55	12.20
Russet Legend	2000	9.8(2)	0.6(2)	5.6(2)	2.8(2)	1.2(2)	0.00	2.01	0.01	0.01	0.00	0.00
Russet Legend	3	11.2(7)	1.3(7)	3.6(7)	5.1(7)	2.5(13)	0.00	5.21	1.02	0.03	3.00	2.00
Russet Norkotah	2000	6.0(6)	0.9(6)	2.7(6)	0.5(6)	13.8(6)	0.00	0.15	0.02	0.02	1.11	0.11
Russet Norkotah	4	7.0(18)	1.3(18)	3.5(18)	0.5(18)	5.4(28)	0.00	0.219	0.08	0.06	7.21	2.22
Russet Norkotah-3	2000	11.1(5)	1.4(5)	6.9(5)	0.5(5)	11.0(5)	0.00	0.06	0.02	0.02	1.11	0.02
Russet Norkotah-3	3	14.3(14)	1.7(14)	7.3(14)	0.4(14)	8.1(22)	0.00	0.012	0.04	0.04	3.11	0.12
Russet Norkotah-8	2000	7.5(5)	1.4(5)	4.7(5)	0.4(5)	6.0(5)	0.00	0.15	0.02	0.02	1.02	0.11
Russet Norkotah-8	3	11.5(14)	1.8(14)	5.4(14)	0.4(14)	3.9(22)	0.00	0.210	0.04	0.04	3.02	0.12
Shepody	2000	32.7(3)	9.0(3)	11.4(3)	0.1(3)	1.7(5)	0.00	0.21	0.01	0.01	0.10	0.00
Shepody	3	33.0(9)	7.9(9)	10.8(9)	0.1(9)	3.0(13)	0.00	1.24	0.03	0.03	1.10	0.00
Umatilla Russet	2000	18.1(2)	1.5(2)	11.7(2)	4.2(2)	0.0(2)	0.00	0.21	0.10	0.01	0.00	0.00
Umatilla Russet	3	18.9(9)	1.9(9)	13.3(9)	2.2(9)	3.3(14)	0.00	0.53	0.12	0.03	3.00	1.10
A84118-3	2000	13.3(3)	0.4(3)	11.8(3)	0.6(3)	1.7(3)	0.00	2.01	0.10	0.01	1.00	1.00
A84118-3	3	9.5(10)	1.7(10)	6.7(10)	0.3(10)	2.9(17)	0.00	3.23	0.12	0.03	3.10	3.00
A84180-8	2000	22.8(2)	0.6(2)	11.4(2)	10.2(2)	0.0(2)	0.00	0.21	0.01	0.01	0.00	0.00
A84180-8	3	11.8(9)	0.8(9)	5.8(9)	4.4(9)	2.8(16)	0.00	0.26	0.03	0.03	3.00	1.10

¹Total defects may contain defects (common scab, rot, etc.) other than the four listed in this table.

²From left-to right, the scores are good, borderline, and poor.

³Out of field samples were fried three to twelve days after harvest in New Jersey, North Carolina and Virginia.

⁴Chips were reconditioned in trials from Maine, Upstate New York, New Brunswick, and Ohio.

⁵From left-to-right, the scores are good, fair, and poor.

East Region Trial Table 6. Tuber and plant rating system for NE-184 potato variety trials.

TUBER RATING SYSTEM

Tuber Skin Color

1. Purple
2. Red
3. Pink
4. Dark Brown
5. Brown
6. Tan
7. Buff
8. White
9. Cream

Skin Texture

1. Part. russet
2. Heavy russet
3. Mod. russet
4. Light russet
5. Netted
6. Slight netting
7. Moderately smooth
8. Smooth
9. Very smooth

Tuber Shape

1. Round
2. Mostly round
3. Round to oblong
4. Mostly oblong
5. Oblong
6. Oblong to long
7. Mostly long
8. Long
9. Cylindrical

Eye Depth

1. Very deep
2. --
3. Deep
4. --
5. Intermediate
6. --
7. Shallow
8. --
9. Very shallow

Appearance

1. Very poor
2. --
3. Poor
4. --
5. Fair
6. --
7. Good
8. --
9. Excellent

PLANT RATING SYSTEM

Plant Type

1. Decumbent-poor canopy
2. Decumbent-fair canopy
3. Decumbent-good canopy
4. Spreading-poor canopy
5. Spreading-fair canopy
6. Spreading-good canopy
7. Upright-poor canopy
8. Upright-fair canopy
9. Upright-good canopy

Air Pollution

1. Dead
2. --
3. Moderate defoliation
4. --
5. Moderate injury
6. --
7. Mild injury
8. --
9. No symptoms

Plant size

1. Very small
2. +
3. Small
4. +
5. Medium
6. +
7. Large
8. +
9. Very large

Vine Maturity

1. Very early
2. Early
3. +
4. Medium early
5. Medium
6. Medium late
7. +
8. Late
9. Very late

Plant Appearance

1. Very poor
2. Poor
3. +
4. --
5. Fair
6. +
7. --
8. Good
9. Excellent

North Central Potato Variety Trials

IOWA, Dr. Bill Summers
LOUISIANA, Dr. Patrick Colyer
MICHIGAN, Dr. David Douches
MINNESOTA, Dr. Christian Thill
NEBRASKA, Dr. Alexander Pavlista
NORTH DAKOTA, Dr. Jim Lorenzen
OHIO, Dr. Matt Kleinhenz

WISCONSIN, Dr. Jiming Jiang
ALBERTA, Dr. Dermot Lynch
MANITOBA, Dr. Dermot Lynch
ONTARIO, Dr. Alan Sullivan
USDA /ARS Potato Research Worksite,
Mr. Marty Glynn

NCPVT Trial - 2000

The North Central Potato Variety Trials (NCPVT) were conducted at eight U.S. and three Canadian locations in 2000 (Tables 1, 2). Twenty seedling lines were entered: four each from Minnesota, Michigan, Wisconsin, and Alberta; three from North Dakota; and one from the Western Region (WRCC-27) (Table 1). Lines were compared to commercial cultivars Dark Red Norland and Red Pontiac for the five red seedling entries; Russet Burbank and Russet Norkotah for the four russet seedling entries; and Atlantic, NorValley, and Snowden for the 11 round white chipping seedling entries (Table 1).

General Trial and Cultural Information

Trials are arranged in a RCBD (randomized complete block design) with four replications of 20-hills per plot and seed spacing of 12" (unless otherwise noted). Standard cultural practices were observed at trial locations (Table 2). Individual breeding programs ship seed tubers to each trial location and Minnesota supplies commercial cultivars used as controls. Seed for the Canadian locations was sent to the USDA-PRW (USDA/ARS Potato Research Worksite, East Grand Forks, MN) for pick-up and redistribution within Canada by D. Lynch. Note that seed tubers sent to the three Canadian locations from Minnesota and Wisconsin were inadvertently treated with CIPC late in the storage season, therefore erratic and incomplete stands were observed. Note that North Dakota had data from three replications due to water damage. Note that Nebraska yield data was inadvertently lost and that data from Louisiana was missing.

Data Collected

Seedling data is grouped and presented by market classification i.e., Red, Russet/Long, and Round White. In addition, seedlings and cultivars are judged (1st, 2nd, and 3rd) for their overall merit within each market classification (Table 16). The data collected were plant maturity (Table 3), yield and grade (Tables 4, 5, 6, 7, 8, 9), tuber internal and external quality, and common scab severity (Tables 10, 11, 12) respectively, and specific gravity (Table 13), and processing quality (Tables 14, 15). General comments on the clonal entries are found in Table 17. Table 18 has storage processing data (chip color, specific gravity, and sucrose and glucose sugars) from entries of the 1999 NCPVT. Note that eight chip tests were performed and that the notation is storage duration in months / storage temperature F / and processed directly (D) or after reconditioning (2 weeks at 65 F) i.e., 0-months/48 F/D-Direct, 3/48/D, 4/42/D, 5/48/D, 5/42/D, 7/48/D, 7/42/D, and 7/42/2(65).

Report compiled by C. Thill, thill005@umn.edu

North Central Regional Potato Variety Trial Table 1. Clonal entries, parentage, market use, and characteristics.

Entry No.	Clone	Entered by	Market Use	Pedigree		Characteristics			
				Female	Male	Flower Color	Skin Type	Flesh Color	Shape
RED									
1	MN 17989 R	MN	Fresh, med-mat fresh mkt red, ex color				Red	White	Rnd-oval
2	MN 17993 R	MN	Rnd, med-mat fresh mkt red, ex color				Red	White	Rnd-oval
3	MN 18365 R	MN	Oval, early-med-mat fresh mkt red, ex color				Red	White	Oval
4	ND 3196-1 R	ND	Red, fresh market.	ND 2223-8R	ND 649-4R		Red	White	Rnd-oval
5	ND 3574-5 R	ND	Oval, med-mat fresh mkt red, bright color	ND 1196-2R	NorDonna		Red	White	Oval
6	D. R. Norland	Ck	Fresh			Purple	Red	White	Rnd-oval
7	R. Pontiac	Ck	Fresh			Purple	Red	White	Rnd-oval
RUSSET / LONG									
8	AO 87277-6	WRPVT	FF russet				rus	White	Long
9	MN 18713 rus	MN	FF and fresh				rus	White	Oblong
10	ND 4093-4 rus	ND	Fresh and processing russet		A 7961-1	Viol/wht tips	rus	White	Blky-long
11	V 0168-3	AB	Fresh russet	ND 2667-37			rus	White	Oblong-long
12	R. Burbank	Ck	FF			White	rus	White	Long
13	R. Norkotah	Ck	Fresh			White	rus	White	Oblong-long
ROUND WHITE									
14	MSA 091-1	M1	Chips, seab resistant	MS702-80	NORCHIP		White	White	Blky-oval
15	MSB 107-1	M1	Fresh, round white	LABELLE	MS702-80		White	White	Rnd-oval
16	MSE 018-1	M1	Chips / Fresh, high gravity	GEMCHIP	W877		White	White	Rnd-oval
17	MSF 373-8	M1	Chips / Fresh, high yield	MS702-80	NY88		White	White	Rnd-oval
18	V 0024-6	AB	Chips, early chip field				White	White	Oval
19	V 0056-1	AB	Chips, field and midterm storage				White	White	Rnd-oval
20	V 0123-25	AB	Chips, long term storage				White	White	Oval
21	W 1355-1	W1	Chips	W 855	S 440	White	White	White	Rnd-oval
22	W 1368	W1	Chips	W 831	S 459	White	White	White	Rnd-oval
23	W 1386	W1	Chips	W 876	LD 20-6	Dark Purple	White	White	Rnd-oval
24	W 1431	W1	Chips	W 1036	RHL 167	Blue Purple	White	White	Rnd-oval
25	Atlantic	Ck	Chips			Purple	White	White	Rnd-oval
26	NorValley	Ck	Chips			White	White	White	Rnd-oval
27	Snowden	Ck	Chips			White	White	White	Rnd-oval

North Central Regional Potato Variety Trial Table 2. Locations, Cooperators, and Cultural Information.

Site No.	Locations	Cooperators	Soil Type	Dates		Days to Vine Kill	N - P - K				Cultural Information			
				Planting	Harvest		Fertilizer (lbs./A)	Herbicides	Insecticides	Fungicides	Other Information			
1	IOWA (IA)	Dr. Bill Summers	Entic Hapludolls Mixed Mesic Loamy Sand	24-Apr	1-Aug	none	99	Dual 8E [1pt]	Pounce [4x]	Terranil [2x]				
	Muscatine, IA							Lorox [1pt]	[6oz/A]	Quadris [1X]				
								Post [1.25pt]						
								Crop oil						
2	LOUISIANA (LA)	Dr. Patrick D. Colyer	Norwood V. fine sandy loam	2-May-00	7-Sep-00	121	128	Dual	Admire	chlorothalinea				
3	MICHIGAN (MI)	Dr. Dave Douches	McBride sandy loam	Sprink.				Sencor		5-day schedule				
	Montcalm Research Farm Entrican, MI	Chris Long												
4	MINNESOTA (MN)	Dr. Christian Thill	Hubbard sand	24-Apr-00	6-Sep-00	135	135	Dual +	Admire	Bravo WS	Disease run(s)			
	UM-Becker Res Farm Becker, MN	Richard Wenkel						Lorox DF	Sevin	Quadris	from separate trials.			
5	NEBRASKA (NE)	Dr. Alexander Pavlista	Sandy loam	25-Apr-00	29-Sep-00	149	157	Turbo	Admire	Tops M Z	Dry & hot season			
	PREC Scootsbluff, NE		pH 7.8 OM 1.2%						Dimethoate	Penncozeb Bravo Zn				
										& Quadris				
6	NORTH DAKOTA (ND)	Dr. Jim Lorenzen	Wheatville	9-May-00	15-Sep-00	129	138	preplant Dual II	Admire	Ridomil Gold	Data from 3 reps			
	UM-Crookston Res Farm Crookston, MN	Bryce Farnsworth	Prairie fine sandy loam					Post w/ oil	Provado	Bravo	due to H2O damage.			
		Mike Schwalbe						Matrix /Sencor Reglone						

North Central Regional Potato Variety Trial Table 2. Locations, Cooperators, and Cultural Information.

Site No.	Locations	Cooperators	Soil Type	Dates				Cultural Information				
				Irrigation	Planting	Harvest	Vine Kill	Fertilizer (lbs/A)	Herbicides	Insecticides	Fungicides	Other Information
7	OHIO (OH) OARDC Wooster, OH	Dr. Matt Kleinhenz	Silt loam	dryland	1-Jun-00	21-Sep-00	92	113	Dual + preplant, 600#, 10-20-20 plant, 600#, 10-20-20	Admire Thiodan Ausana	Penncozeb Bravo	1999 Wheat Rye cover (winter)
8	WISCONSIN (WI) UW-Hancock Res. Farm Hancock, WI	Dr. Jiming Jiang Dr. Horia Groza Bryan Bowen	Plainfield loamy sand	Sprink.	25-Apr-00	11-Sep-00	126	140	Linex 4L pre-plant, 300#, 0-0-60 plant, 500#, 6-24-24 side, 350#, 21-0-0 side, 375#, 34-0-0	Admire	Bravo ZN Quadris	
9	ALBERTA (AB) Brooks, AB, Canada	Dr. Dermot Lynch	Silt loam	Solid set 18.25 hr	18-May-00	10-Oct-00	123 (Reglone)	145	Eptam 8E pre-plant, 610#, 28-26-0 pre-plant, 220#, 0-0-60	Decis Thiodan Guthion	Ridomil Gold Bravo 500	W1 & MN entries exposed to CIPC in transit
10	MANITOBA (MB) Morden, MB, Canada	Dr. Dermot Lynch	Hochfeld fine sandy loam	Pivot - 48mm Rain- 308mm	11-May-00	14-Sep-00	120 (Reglone)	126	pre-plant 150# N pre-plant 50# P pre-plant 90# K	Thiodan Admire Poast	Bravo 500 Acrobat MZ	W1 & MN entries exposed to CIPC in transit
11	ONTARIO (ON) Cambridge Res Farm Cambridge, ON, Canada	Dr. Alan Sullivan Vanessa Currie	Fox sandy loam	.5 in, July 27	11-May-00	12-Sep-00	99	124	800 lbs/ac 16:8:8 with planter	Pre-emerg w/ Linuron + dual Regalone for Vine kill	Bravo- June 22 July 19, 26, 31 10-Aug Sevin- July 26	22" rain May-Sept, cool W1 & MN entries exposed to CIPC in transit

North Central Regional Potato Variety Trial Table 3. Vine maturity.

Entry	No.	Clone	Irrigated					Dryland			
			AB	MB	MI	MN	NE	ON	WI	ND	OH
RED											
1		MN 17989 R	2.5	5.0	2.6	3.3	mid	5.0	3.6	2.7	6
2		MN 17993 R	3.1	4.5	1.3	1.5	v. early	4.5	3.9	5.0	3
3		MN 18365 R	2.3	3.5	1.6	2.3	v. early	3.3	3.1	3.0	2
4		ND 3196-1 R	1.6	2.0	1.0	1.5	v. early	2.8	3.8	2.3	1
5		ND 3574-5 R	1.6	1.0	1.3	2.0	early	2.3	2.9	2.7	3
6		D. R. Norland	0.9	2.0	1.0	1.0	v. early	2.3	3.2	2.7	3
7		R. Pontiac	2.9	4.0	3.0	3.8	late	3.5	4.1	4.0	7
RUSSET / LONG											
8		AO 87277-6			3.0	4.3	mid. Late		3.9	4.0	
9		MN 18713 rus	2.0	4.0	2.6	2.6	mid		3.9	4.3	6
10		ND 4093-4 rus	2.1	2.0	1.5	2.5	v. early	3.0	3.6	3.0	4
11		V 0168-3	1.6	1.5	1.0	2.7	late	2.5	3.0	3.0	3
12		R. Burbank	4.0	5.0	2.8	4.4	v. early	3.0	3.9	5.0	8
13		R. Norkotah	1.5	3.0	1.3	1.0	v. early	5.0	3.4	4.3	4
ROUND WHITE											
14		MSA 091-1	3.0	4.0	3.0	3.2	mid	3.5	3.5	4.0	7
15		MSB 107-1	3.0	4.0	3.3	4.2	mid. Late	3.8	3.8	4.7	8
16		MSE 018-1	4.3	5.0	3.0	4.5	late	4.3	4.3	4.0	8
17		MSF 373-8	3.0	4.5	3.5	4.0	late	3.8	3.5	4.7	8
18		V 0024-6	2.0	2.5	2.0	4.2	early	3.0	3.8	4.0	5
19		V 0056-1	2.1	1.5	1.0	3.2	v. early	3.3	3.1	3.0	4
20		V 0123-25	1.5	2.0	1.0	3.5	v. early	2.3	3.1	2.7	3
21		W 1355-1	3.3	4.0	2.3	3.9	mid	4.0	3.3	3.7	5
22		W 1368	3.5	5.0	2.0	2.8	mid	4.5	3.1	2.3	6
23		W 1386	3.5	5.0	2.8	4.0	mid	3.8	3.5	4.0	5
24		W 1431	3.7	5.0	2.5	4.0	mid	4.0	3.9	4.3	6
25		Atlantic	2.6	4.0	2.8	3.4	mid	3.5	3.6	4.3	6
26		NorValley	1.8	3.0	2.3	3.3	mid	3.3	3.1		5
27		Snowden	3.8	4.0	2.0	3.8	mid. Late	3.5	3.3	5.0	8

Scales: 1 (early) - 5 (late); 1 (early) - 9 (late)

North Central Regional Potato Variety Trial Table 4. Total yield (cwt/acre).

Entry No.	Clone	Irrigated						Dryland								
		AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank	
RED																
1	MN 17989 R	56	180	135	460	482	ND	ND	30	483	261	329	139	234	255	6
2	MN 17993 R	79	155	146	415	643	ND	ND	171	519	304	196	132	164	273	5
3	MN 18365 R	238	123	128	388	379	ND	ND	112	311	240	253	108	181	227	7
4	ND 3196-1 R	588	175	276	404	622	ND	ND	274	494	405	197	111	154	349	3
5	ND 3574-5 R	554	223	269	511	593	ND	ND	200	549	414	324	147	235	374	2
6	D. R. Norland	586	133	285	476	544	ND	ND	341	473	405	105	129	117	341	4
7	R. Pontiac	750	190	336	622	743	ND	ND	392	708	534	204	197	200	460	1
Mean		407	168	225	468	572			217	505	366	230	138	184	326	
RUSSET / LONG																
8	AO 87277-6		168			600	ND	ND		577	448	268		268	403	1
9	MN 18713 rus	5	53	38	476	540	ND	ND		541	276	175	139	157	246	6
10	ND 4093-4 rus	480	153	218	419	442	ND	ND	251	435	343	310	134	222	316	5
11	V 0168-3	539	179	205	415	629	ND	ND	244	523	390	333	119	226	354	4
12	R. Burbank	563	175	359	444	618	ND	ND	248	578	427	52	150	101	354	3
13	R. Norkotah	542	206	267	382	649	ND	ND	338	523	415	192	142	167	360	2
Mean		426	156	217	427	580			270	530	383	222	137	190	339	
ROUND WHITE																
14	MSA 091-1	587	164	338	433	493	ND	ND	296	498	401	232	163	197	356	6
15	MSB 107-1	496	193	313	590	687	ND	ND	293	688	466	251	216	234	414	4
ND	MSE 018-1	511	108	353	661	730	ND	ND	394	608	481	237	186	211	421	1
17	MSF 373-8	488	140	271	444	546	ND	ND	324	526	391	229	136	182	345	9
18	V 0024-6	675	215	243	390	799	ND	ND	334	635	470	335	110	222	415	3
19	V 0056-1	523	221	220	457	513	ND	ND	344	517	399	274	116	195	354	8
20	V 0123-25	531	172	217	396	566	ND	ND	256	422	366	243	127	185	326	12
21	W 1355-1	165	185	246	423	497	ND	ND	149	465	304	251	124	188	278	14
22	W 1368	291	191	267	531	749	ND	ND	185	461	382	283	166	225	347	10
23	W 1386	435	222	292	533	783	ND	ND	256	618	448	207	153	180	389	5
24	W 1431	274	238	203	458	580	ND	ND	248	596	371	214	131	172	327	13
25	Atlantic	614	163	321	489	558	ND	ND	340	422	415	133	148	141	354	7
26	NorValley	563	235	314	538	656	ND	ND	282	565	450		181	181	417	2
27	Snowden	479	167	330	421	730	ND	ND	139	521	398	84	145	115	335	11
Mean		474	187	281	483	635			274	539	410	229	150	188	363	
Grand mean		447	175	253	468	606			258	528	393	227	144	187	348	

North Central Regional Potato Variety Trial Table 5. Total US No. 1 yield (cwt/acre).

Entry	No.	Clone	Irrigated						Dryland							
			AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank
RED																
1	MN 17989 R	12	100	112	410	437	ND	18	436	218	311	100	205	215	6	
2	MN 17993 R	18	69	122	333	591	ND	112	509	251	161	90	126	223	5	
3	MN 18365 R	139	54	95	308	312	ND	97	290	185	219	75	147	177	7	
4	ND 3196-1 R	373	111	255	356	587	ND	233	474	341	176	81	129	294	3	
5	ND 3574-5 R	346	112	210	450	555	ND	130	540	334	306	109	207	306	2	
6	D. R. Norland	322	88	252	425	508	ND	297	454	335	90	94	92	281	4	
7	R. Pontiac	409	86	292	554	692	ND	339	665	434	188	114	151	371	1	
	Mean	231	89	191	405	526		175	481	300	207	95	151	267		
RUSSET / LONG																
8	AO 87277-6		75			576	ND		552	401	235		235	360	1	
9	MN 18713 rus		14	29	329	479	ND		510	272	139	88	113	227	6	
10	ND 4093-4 rus	239	81	175	307	379	ND	196	412	255	278	89	183	239	5	
11	V 0168-3	360	155	191	372	613	ND	208	488	341	324	81	203	310	2	
12	R. Burbank	316	56	303	274	531	ND	202	471	307	16	76	46	249	4	
13	R. Norkotah	232	166	211	265	607	ND	259	494	319	148	94	121	275	3	
	Mean	287	91	182	309	531		216	488	316	190	86	150	277		
ROUND WHITE																
14	MSA 091-1	243	137	313	379	464	ND	253	478	324	206	92	149	285	11	
15	MSB 107-1	277	140	295	554	605	ND	273	674	403	240	125	182	354	1	
16	MSE 018-1	307	62	305	613	662	ND	303	592	406	176	110	143	348	2	
17	MSF 373-8	264	100	258	430	531	ND	281	518	340	220	71	146	297	7	
18	V 0024-6	392	189	205	327	747	ND	284	615	394	309	49	179	346	3	
19	V 0056-1	341	187	204	388	489	ND	317	495	346	240	74	157	304	8	
20	V 0123-25	303	115	163	324	517	ND	192	419	290	204	89	147	258	13	
21	W 1355-1	58	141	165	288	411	ND	96	455	231	192	81	136	210	14	
22	W 1368	166	152	223	444	654	ND	150	450	320	242	90	166	286	10	
23	W 1386	168	188	267	472	694	ND	174	597	366	180	79	129	313	5	
24	W 1431	125	200	173	425	540	ND	198	590	322	187	80	134	280	12	
25	Atlantic	411	140	295	445	515	ND	298	419	360	101	107	104	303	6	
26	NorValley	282	190	283	454	595	ND	229	526	366		111	111	334	4	
27	Snowden	353	143	303	354	691	ND	111	498	350	72	108	90	292	9	
	Mean	264	149	246	421	580		226	523	344	198	90	141	301		
	Grand mean	265	120	242	424	588		224	527	346	197	90	140	302		

North Central Regional Potato Variety Trial Table 6. Percent U.S. No. 1 yield.

Entry	No. Clone	Irrigated							Dryland						
		AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank
RED															
1	MN 17989 R	21.1	56.0	83.3	89.0	90.6	ND	59.0	90.3	69.9	95.0	72.0	83.5	72.9	6
2	MN 17993 R	22.3	44.8	83.8	80.0	91.8	ND	65.3	98.1	69.4	82.0	68.2	75.1	70.7	7
3	MN 18365 R	58.3	43.6	74.5	79.0	82.3	ND	87.3	93.3	74.1	87.0	69.6	78.3	75.0	5
4	ND 3196-1 R	63.4	63.2	92.2	88.0	94.5	ND	85.2	96.0	83.2	89.0	72.8	80.9	82.7	1
5	ND 3574-5 R	62.4	50.1	77.8	88.0	93.6	ND	64.8	98.4	76.4	94.0	74.2	84.1	78.1	3
6	D. R. Norland	55.0	66.4	88.3	89.0	93.3	ND	87.1	96.1	82.2	86.0	73.2	79.6	81.6	2
7	R. Pontiac	54.5	45.4	86.9	89.0	93.2	ND	86.5	93.9	78.5	92.0	58.0	75.0	77.7	4
	Mean	48.1	52.8	83.8	86.0	91.3		76.4	95.2	76.2	89.3	69.7	79.5	77.0	
RUSSET / LONG															
8	AO 87277-6		44.7			96.1	ND		95.8	78.8	88.0		88.0	81.1	2
9	MN 18713 rus		25.4	75.7	69.0	88.6	ND		94.3	70.6	79.0	63.2	71.1	70.7	5
10	ND 4093-4 rus	49.7	53.0	80.2	73.0	85.7	ND	78.0	94.7	73.5	90.0	66.4	78.2	74.5	4
11	V 0168-3	66.8	86.9	93.3	90.0	97.4	ND	85.2	93.4	87.6	97.0	68.0	82.5	86.4	1
12	R. Burbank	56.0	31.8	84.3	62.0	85.9	ND	81.5	81.4	69.0	31.0	50.8	40.9	62.7	6
13	R. Norkotah	42.8	80.5	79.3	69.0	93.6	ND	76.6	94.4	76.6	77.0	66.0	71.5	75.5	3
	Mean	53.8	53.7	82.6	72.6	91.2		80.3	92.3	76.0	77.0	62.9	72.0	75.2	
ROUND WHITE															
14	MSA 091-1	41.4	83.3	92.4	88.0	94.1	ND	85.5	95.9	82.9	89.0	56.4	72.7	80.7	8
15	MSB 107-1	56.0	72.6	94.2	94.0	88.1	ND	93.2	98.0	85.1	96.0	57.8	76.9	83.3	4
16	MSE 018-1	60.1	56.9	86.2	93.0	90.6	ND	77.1	97.3	80.2	74.0	59.2	66.6	77.2	13
17	MSF 373-8	54.1	71.1	95.3	97.0	97.3	ND	86.7	98.5	85.7	96.0	52.4	74.2	83.2	5
18	V 0024-6	58.1	87.9	84.4	84.0	93.4	ND	84.9	96.9	84.2	92.0	44.8	68.4	80.7	7
19	V 0056-1	65.2	84.8	92.4	85.0	95.4	ND	92.2	95.8	87.3	88.0	64.0	76.0	84.8	2
20	V 0123-25	57.1	67.0	75.0	82.0	91.3	ND	74.8	99.2	78.1	84.0	70.0	77.0	77.8	11
21	W 1355-1	35.2	76.4	67.2	68.0	82.8	ND	64.6	97.7	70.3	76.0	65.0	70.5	70.3	14
22	W 1368	57.1	79.7	83.3	84.0	87.4	ND	81.2	97.7	81.5	86.0	54.0	70.0	78.9	9
23	W 1386	38.6	84.7	91.5	89.0	88.7	ND	67.9	96.7	79.6	87.0	51.4	69.2	77.3	12
24	W 1431	45.6	84.0	85.0	93.0	93.1	ND	80.0	99.1	82.9	87.0	61.6	74.3	81.0	6
25	Atlantic	67.0	85.9	92.0	91.0	92.2	ND	87.5	99.2	87.8	76.0	72.0	74.0	84.7	3
26	NorValley	50.2	80.9	90.1	84.0	90.6	ND	80.9	93.1	81.4		61.2	61.2	78.9	10
27	Snowden	73.6	85.4	91.8	84.0	94.5	ND	79.6	95.6	86.4	86.0	74.2	80.1	85.0	1
	Mean	54.2	78.6	87.2	86.9	91.4		81.2	97.2	82.4	85.9	60.3	72.2	80.3	
Grand mean		52.5	66.4	85.4	83.9	91.3		79.7	95.6	79.4	84.8	63.3	74.1	78.3	

North Central Regional Potato Variety Trial Table 7. Yield (cwt/acre) of B size tubers (< 1 7/8 in.).

Entry	No.	Clone	Irrigated							Dryland							
			AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank	
RED																	
1		MN 17989 R	17	20	18	32	33	ND	12	11	20	13	8	11	18	7	
2		MN 17993 R	32	20	24	54	36	ND	22	7	28	29	13	21	26	5	
3		MN 18365 R	57	47	28	66	58	ND	14	21	42	21	9	15	36	2	
4		ND 3196-1 R	53	12	15	44	22	ND	41	9	28	5	7	6	23	6	
5		ND 3574-5 R	80	20	59	51	34	ND	70	9	46	18	12	15	39	1	
6		D. R. Norland	80	17	19	38	29	ND	44	9	34	10	10	10	28	4	
7		R. Pontiac	36	35	24	50	51	ND	27	16	34	10	13	11	29	3	
		Mean	51	24	27	48	38		33	12	33	15	10	23	29		
RUSSET / LONG																	
8		AO 87277-6		33			24	ND		16	24	20		20	23	5	
9		MN 18713 rus	1	37	7	133	58	ND		26	44	20	32	26	39	4	
10		ND 4093-4 rus	112	56	43	101	60	ND	55	13	63	13	16	15	52	1	
11		V 0168-3	31	14	14	37	16	ND	36	11	23	9	10	9	20	6	
12		R. Burbank	86	76	39	98	45	ND	46	14	58	8	19	13	48	3	
13		R. Norkotah	74	38	49	111	34	ND	79	35	60	26	21	24	52	2	
		Mean	61	42	30	96	40		54	19	45	16	19	18	39		
ROUND WHITE																	
14		MSA 091-1	59	18	22	39	29	ND	43	4	31	15	16	16	27	10	
15		MSB 107-1	31	11	18	30	15	ND	11	6	17	10	7	9	15	13	
16		MSE 018-1	60	26	45	40	60	ND	55	10	42	59	17	38	41	4	
17		MSF 373-8	27	11	13	13	15	ND	9	5	13	4	3	4	11	14	
18		V 0024-6	56	26	34	39	36	ND	41	6	34	24	7	15	30	7	
19		V 0056-1	80	23	17	46	22	ND	27	11	32	29	8	19	29	8	
20		V 0123-25	78	29	54	59	34	ND	63	15	47	30	8	19	41	5	
21		W 1355-1	66	44	81	135	82	ND	53	13	68	59	25	42	62	1	
22		W 1368	51	35	45	85	76	ND	35	13	49	41	16	28	44	2	
23		W 1386	51	20	23	43	47	ND	24	13	32	24	12	18	29	9	
24		W 1431	51	32	30	32	31	ND	49	7	33	27	13	20	30	6	
25		Atlantic	39	15	25	34	24	ND	23	15	25	17	12	14	22	12	
26		NorValley	62	39	29	65	58	ND	54	20	46		16	16	43	3	
27		Snowden	43	18	27	42	22	ND	28	10	27	11	12	12	24	11	
		Mean	54	25	33	50	39		37	11	35	27	12	19	32		
Grand mean			54	28	31	58	39		38	13	37	21	13	17	33		

North Central Regional Potato Variety Trial Table 8. Yield (cwt/acre) of A size tubers (> 1 7/8 in.).

Entry No.	Clone	Irrigated							Dryland								
		AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank		
RED																	
1	MN 17989 R	39	100	117	280	450	ND	ND	18	425	204	316	130	223	208	6	
2	MN 17993 R	47	69	122	274	607	ND	ND	149	502	253	167	120	143	229	5	
3	MN 18365 R	181	54	100	303	321	ND	ND	97	269	189	232	99	166	184	7	
4	ND 3196-1 R	536	111	261	352	600	ND	ND	233	465	365	192	104	148	317	3	
5	ND 3574-5 R	474	112	210	409	558	ND	ND	130	531	346	306	135	221	318	2	
6	D.R. Norland	506	88	267	390	515	ND	ND	297	446	358	95	119	107	303	4	
7	R. Pontiac	714	86	312	454	692	ND	ND	365	649	468	194	184	189	406	1	
	Mean	356	89	199	352	535			184	469	312	215	127	171	281		
RUSSET / LONG																	
8	AO 87277-6		75			576	ND	ND		536	396	248		248	359	1	
9	MN 18713 rus	5	14	32	309	482	ND	ND		485	221	155	107	131	198	6	
10	ND 4093-4 rus	368	81	175	272	382	ND	ND	196	399	268	297	118	207	254	5	
11	V 0168-3	507	155	191	311	613	ND	ND	208	477	352	324	110	217	322	2	
12	R. Burbank	477	56	321	253	573	ND	ND	202	457	334	44	131	88	279	4	
13	R. Norkotah	468	166	218	233	614	ND	ND	259	459	345	166	121	143	300	3	
	Mean	365	91	187	276	540			216	469	319	206	117	172	285		
ROUND WHITE																	
14	MSA 091-1	528	137	316	299	464	ND	ND	253	474	353	217	147	182	315	7	
15	MSB 107-1	464	140	295	389	672	ND	ND	282	668	416	241	209	225	373	2	
16	MSE 018-1	451	62	309	423	671	ND	ND	338	582	405	178	169	173	354	4	
17	MSF 373-8	461	100	258	222	531	ND	ND	315	513	343	225	132	179	306	9	
18	V 0024-6	618	189	209	269	763	ND	ND	293	609	422	311	103	207	374	1	
19	V 0056-1	444	187	204	338	491	ND	ND	317	484	352	245	108	176	313	8	
20	V 0123-25	453	115	163	293	531	ND	ND	194	404	308	213	120	166	276	13	
21	W 1355-1	99	141	165	283	415	ND	ND	96	441	234	192	100	146	215	14	
22	W 1368	240	152	223	398	672	ND	ND	150	437	325	242	151	196	296	10	
23	W 1386	384	188	268	395	736	ND	ND	232	584	398	183	141	162	346	5	
24	W 1431	223	200	173	375	549	ND	ND	198	583	329	187	118	153	290	12	
25	Atlantic	575	140	296	357	535	ND	ND	318	404	375	116	137	126	320	6	
26	NorValley	501	190	286	387	598	ND	ND	229	506	385		164	164	358	3	
27	Snowden	436	143	303	265	709	ND	ND	111	488	351	73	133	103	296	11	
	Mean	420	149	248	335	596			238	513	357	202	138	169	316		
Grand mean		392	120	223	328	567			219	492	337	206	131	170	300		

North Central Regional Potato Variety Trial Table 9. Yield (cwt/acre) of culled tubers.

Entry No.	Clone	Irrigated						Dryland									
		AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank		
RED																	
1	MN 17989 R	27	59	5	18	13	ND	0	47	24	5	31	18	23	2		
2	MN 17993 R	29	66	0	25	16	ND	37	10	26	6	29	18	24	3		
3	MN 18365 R	42	23	5	16	9	ND	0	21	16	13	24	19	17	1		
4	ND 3196-1 R	163	53	6	4	13	ND	0	20	37	16	23	20	33	6		
5	ND 3574-5 R	128	92	1	10	4	ND	0	9	35	0	26	13	30	4		
6	D. R. Norland	183	28	15	14	7	ND	0	18	38	5	25	15	33	5		
7	R. Pontiac	305	69	20	19	0	ND	26	43	69	6	70	38	62	7		
	Mean	125	56	7	15	9		9	24	35	7	33	20	32			
RUSSET / LONG																	
8	AO 87277-6		60			0	ND		25	28	13		13	24	2		
9	MN 18713 rus	5	3	3	14	4	ND		31	10	16	19	17	12	1		
10	ND 4093-4 rus	129	16	0	13	4	ND	0	23	26	19	29	24	26	4		
11	V 0168-3	148	9	0	4	0	ND	0	35	28	0	29	14	25	3		
12	R. Burbank	162	44	18	76	42	ND	0	108	64	28	55	42	59	6		
13	R. Norkotah	236	2	6	8	7	ND	0	29	41	18	27	23	37	5		
	Mean	136	22	5	23	9		0	42	33	16	32	22	30			
ROUND WHITE																	
14	MSA 091-1	285	9	3	13	0	ND	0	20	47	11	55	33	44	12		
15	MSB 107-1	187	42	0	12	67	ND	9	14	47	1	84	42	46	13		
16	MSE 018-1	144	21	4	7	9	ND	35	16	34	2	59	30	33	8		
17	MSF 373-8	196	30	0	4	0	ND	34	8	39	5	61	33	38	9		
18	V 0024-6	226	0	4	23	16	ND	9	20	43	2	54	28	39	10		
19	V 0056-1	103	10	0	23	2	ND	0	22	23	5	33	19	22	5		
20	V 0123-25	150	28	0	16	15	ND	2	3	30	9	31	20	28	6		
21	W 1355-1	41	0	0	0	4	ND	0	11	8	0	19	9	8	1		
22	W 1368	74	4	0	0	18	ND	0	11	15	0	61	30	19	3		
23	W 1386	216	14	2	16	42	ND	58	21	52	3	63	33	48	14		
24	W 1431	98	7	0	0	9	ND	0	5	17	0	38	19	17	2		
25	Atlantic	164	8	1	10	20	ND	20	3	32	15	30	22	30	7		
26	NorValley	219	6	3	22	4	ND	0	39	42		54	54	43	11		
27	Snowden	83	6	0	25	18	ND	0	23	22	1	25	13	20	4		
	Mean	156	13	1	12	16		12	15	32	4	48	28	31			
	Grand mean	144	26	4	15	13		9	23	33	8	40	24	31			

North Central Regional Potato Variety Trial Table 10. Percent tuber internal defects and percent free of defects.

Entry		Total (All Loc.)					AB					IA					MB					MI					MN				
		HH	IN	VD	BC	NONE	HH	IN	VD	BC	NONE	HH	IN	VD	BC	NONE	HH	IN	VD	BC	NONE	HH	IN	VD	BC	NONE					
RED																															
1	MN 17989 R	8	1	2	0	89						0	0	0	100	33	0	0	0	0	67	6	4	18	0	72	20	0	0	0	80
2	MN 17993 R	2	0	0	0	98						0	0	0	100	12	0	0	0	0	88	0	0	0	0	100	1	0	1	0	98
3	MN 18365 R	0	2	3	0	96	1	3	18	78		0	0	0	100	0	1	1	0	98	0	10	2	0	88	0	0	1	0	99	
4	ND 3196-1 R	10	0	1	0	89	0	0	6	94	40	0	0	0	60	0	0	1	0	99	0	0	2	0	98	25	0	5	0	70	
5	ND 3574-5 R	1	1	6	0	92	0	1	45	54	0	10	0	0	90	0	0	0	0	100	0	0	8	0	92	0	0	0	3	97	
6	D. R. Norland	0	0	5	0	94	0	0	29	71	0	0	0	0	100	0	0	0	0	100	0	2	12	0	86	0	0	2	0	98	
7	R. Pontiac	2	0	5	0	93	0	2	37	61	0	0	0	0	100	2	0	2	0	96	8	0	6	0	86	5	0	3	0	92	
RUSSET / LONG																															
8	AO 87277-6	23	0	0	1	77						50	0	0	50											35	0	0	4	61	
9	MN 18713 rus	2	0	1	0	97						10	0	0	90	6	0	0	0	94	0	0	8	2	90	0	0	2	0	98	
10	ND 4093-4 rus	6	0	1	0	93	2	0	0	98		10	0	0	90	6	0	0	0	94	6	0	2	0	92	11	2	3	0	84	
11	V 0168-3	1	0	5	0	94	0	1	40	59	0	0	0	0	100	0	0	0	0	100	0	2	8	0	90	0	1	2	0	97	
12	R. Burbank	3	0	8	0	89	4	1	61	34	0	0	0	0	100	8	0	5	0	87	2	0	4	2	92	0	0	4	0	96	
13	R. Norkotah	1	1	3	0	95	0	1	25	74	0	10	0	0	90	3	0	0	0	97	0	0	4	0	96	0	0	3	0	97	
ROUND WHITE																															
14	MSA 091-1	1	2	6	2	90	0	1	39	60		0	0	0	100	3	0	4	0	93	0	0	6	0	94	4	2	0	14	80	
15	MSB 107-1	0	1	4	0	95	1	3	35	61		0	0	0	100	0	0	0	0	100	0	0	4	0	96	0	2	3	3	92	
16	MSE 018-1	2	1	3	0	94	0	1	21	78		10	0	0	90	3	0	0	0	97	0	0	2	0	98	3	0	1	0	96	
17	MSF 373-8	3	0	4	0	94	0	1	29	70		20	0	0	80	2	0	0	0	98	0	0	4	0	96	0	0	3	0	97	
18	V 0024-6	1	0	10	1	88	0	0	76	24		0	0	0	100	0	0	0	0	100	0	0	6	8	86	2	0	10	2	86	
19	V 0056-1	8	0	5	0	87	0	1	44	55		40	0	0	60	0	0	0	0	100	12	0	0	0	88	13	0	0	0	87	
20	V 0123-25	0	0	3	0	96	0	0	17	83		0	0	0	100	0	1	3	0	96	0	0	10	0	90	0	2	0	0	98	
21	W 1355-1	0	3	6	0	91	0	3	53	44		20	0	0	80	0	0	0	0	100	0	0	0	0	100	0	1	2	0	97	
22	W 1368	3	0	4	0	94	0	0	19	81		20	0	0	80	3	0	0	0	97	0	0	8	0	92	1	0	5	0	94	
23	W 1386	2	2	3	0	93	0	0	24	76		0	20	0	80	6	0	0	0	94	0	4	2	0	94	8	0	0	0	92	
24	W 1431	3	0	4	0	93	0	0	34	66		20	0	0	80	6	0	0	0	94	0	2	2	0	96	5	0	1	0	94	
25	Atlantic	8	2	4	0	85	0	1	36	63		50	0	0	50	1	0	0	0	99	0	2	0	0	98	11	0	1	0	88	
26	NorValley	1	1	3	1	94	0	2	22	76		0	10	0	90	0	0	0	0	100	0	0	6	2	92	4	1	1	1	93	
27	Snowden	2	0	11	0	87	0	0	69	31		20	0	0	80	0	0	0	0	100	0	0	18	0	82	0	0	2	1	97	
HH - Hollow Heart, IN - Internal Necrosis, VD - Vascular Discoloration, BC - Brown Center.																															

HH - Hollow Heart, IN - Internal Necrosis, VD - Vascular Discoloration, BC - Brown Center.

North Central Regional Potato Variety Trial Table 10. Percent tuber internal defects and percent free of defects.

Entry	Clone	Total (All Loc.)					NE				ON				WI				ND				OH					
		HH	IN	VD	BC	NONE	HH	IN	VD	BC	NONE	HH	IN	VD	BC	NONE	HH	IN	VD	BC	NONE	HH	IN	VD	BC	NONE		
RED																												
1	MN 17989 R	8	1	2	0	89	0	0	0	100	0	0	0	0	100	10	1	1	0	88	0	3	0	0	0	0	100	
2	MN 17993 R	2	0	0	0	98	0	0	0	100	0	0	0	0	100	8	0	0	0	92	0	0	0	0	0	0	100	
3	MN 18365 R	0	2	3	0	96	0	0	0	100	0	0	0	0	100	0	0	2	0	98	0	3	1	0	0	0	100	
4	ND 3196-1 R	10	0	1	0	89	0	0	0	100	3	0	0	0	97	32	0	0	0	68	0	0	0	0	0	0	100	
5	ND 3574-5 R	1	1	6	0	92	0	0	0	100	0	0	0	0	100	5	3	1	0	91	0	0	6	0	0	2	98	
6	D. R. Norland	0	0	5	0	94	0	0	0	100	0	0	0	0	100	0	0	1	0	99	3	0	8	0	0	0	100	
7	R. Pontiac	2	0	5	0	93	0	0	1	0	99	0	0	0	100	6	0	0	0	94	0	0	0	0	3	0	97	
RUSSET / LONG																												
8	AO 87277-6	23	0	0	1	77	0	1	1	0	98	0	0	0	100	49	0	0	0	51	1	0	0	0	0	0	99	
9	MN 18713 rus	2	0	1	0	97	0	0	0	100	0	0	0	0	100	0	0	0	0	100	0	0	1	0	0	0	100	
10	ND 4093-4 rus	6	0	1	0	93	3	0	0	0	97	0	0	0	100	17	0	2	0	81	8	0	0	0	0	1	99	
11	V 0168-3	1	0	5	0	94	0	0	0	100	0	0	0	0	100	0	0	0	0	100	8	0	2	0	0	0	100	
12	R. Burbank	3	0	8	0	89	0	0	1	0	99	0	0	1	0	99	11	3	0	0	86	0	0	0	0	0	100	
13	R. Norkotah	1	1	3	0	95	1	0	0	0	99	0	0	1	0	99	1	1	0	0	98	2	0	0	0	1	99	
ROUND WHITE																												
14	MSA 091-1	1	2	6	2	90	0	1	5	0	94	0	1	0	1	98	1	12	1	0	86	0	3	0	0	3	96	
15	MSB 107-1	0	1	4	0	95	0	0	0	100	0	0	0	0	100	0	1	0	0	99	0	0	0	0	0	0	100	
16	MSE 018-1	2	1	3	0	94	0	0	4	0	96	0	0	1	0	99	1	7	0	0	92	0	0	0	0	3	97	
17	MSF 373-8	3	0	4	0	94	2	0	0	0	98	0	0	0	100	1	0	0	0	99	2	0	0	0	0	0	100	
18	V 0024-6	1	0	10	1	88	0	0	2	0	98	0	0	0	100	5	4	1	0	90	0	0	5	0	0	2	98	
19	V 0056-1	8	0	5	0	87	0	0	0	100	0	0	0	1	99	11	0	1	0	88	5	0	0	0	0	0	100	
20	V 0123-25	0	0	3	0	96	0	0	0	100	0	0	0	0	100	0	0	3	0	97	0	0	0	0	0	0	100	
21	W 1355-1	0	3	6	0	91	0	0	0	100	0	0	0	1	99	2	2	0	0	96	0	0	0	0	1	6	2	91
22	W 1368	3	0	4	0	94	0	0	0	100	0	0	0	0	100	1	0	3	0	96	0	2	0	0	0	0	100	
23	W 1386	2	2	3	0	93	0	0	0	100	0	0	0	2	0	98	4	0	0	0	96	0	3	0	0	0	100	
24	W 1431	3	0	4	0	93	0	0	0	100	0	0	0	0	100	3	0	0	0	97	0	0	0	0	0	0	100	
25	Atlantic	8	2	4	0	85	0	2	1	0	97	1	0	2	1	96	11	14	2	0	73	8	0	0	0	0	100	
26	NorValley	1	1	3	1	94	0	0	0	100	0	0	0	0	100	4	0	1	0	95						0	100	
27	Snowden	2	0	11	0	87	0	1	0	0	99	0	0	0	1	99	0	0	6	0	94	3	0	0	0	10	90	

HH - Hollow Heart, IN - Internal Necrosis, VD - Vascular Discoloration, BC - Brown Center.

HH - Hollow Heart, IN - Internal Necrosis, VD - Vascular Discoloration, BC - Brown Center.

North Central Regional Potato Variety Trial Table 11. Percent external defects and percent free (F) of defects.

Entry	Clone	AB					IA					MB					MI		MN																	
		Gr. Cr.	2ndGr.	Grn	Rot	Free	Scab	Gr. Cr.	2ndGr.	Grn	Rot	Free	Gr. Cr.	2ndGr.	Grn	Rot	Free	Scab																		
RED																																				
1	MN 17989 R	2	20	0	58	21	100	30	0	0	0	0	0	96	1	99	0	2	0	2	97															
2	MN 17993 R	3	6	0	60	31	20	0	0	0	0	80	0	100	1	99	0	0	0	3	97															
3	MN 18365 R	0	4	0	19	77	100	0	0	0	0	0	95	4	96	0	0	0	3	97																
4	ND 3196-1 R	0	1	0	29	70	60	10	10	0	0	20	0	98	13	87	2 Shatter bruise					1	98													
5	ND 3574-5 R	0	1	1	26	73	80	0	0	0	0	20	0	100	21	79	0	0	0	4	99															
6	D. R. Norland	0	1	2	33	64	80	0	0	0	0	20	1	94	3	97	0	0	0	1	99															
7	R. Pontiac	9	2	4	29	55	100	0	0	0	0	0	0	94	5	95	0	0	0	0	100															
RUSSET / LONG																																				
8	AO 87277-6						80	30	0	0	0	20						0	0	0	0	100														
9	MN 18713 rus	0	0	0	100	0	0	10	0	0	0	90	7	91	0	100	0	1	0	0	99															
10	ND 4093-4 rus	0	0	0	35	65	10	0	0	0	0	90	0	100	0	100	0	1	0	0	99															
11	V 0168-3	0	1	0	28	71	0	0	0	0	0	100	0	100	13	87	0	0	0	0	100															
12	R. Burbank	4	9	3	22	63	0	0	0	0	0	100	0	94	0	100	0	6	0	1	93															
13	R. Norkotah	2	6	0	46	47	0	0	0	0	0	100	0	97	4	96	1	0	0	1	99															
ROUND WHITE																																				
14	MSA 091-1	2	4	21	39	33	0	0	0	0	0	100	1	99	0	100	0	0	0	0	100															
15	MSB 107-1	0	1	21	24	55	30	0	0	0	0	70	0	100	7	93	0	0	0	10	90															
16	MSE 018-1	0	1	10	25	64	20	0	0	0	0	80	2	97	4	96	0	0	0	1	99															
17	MSF 373-8	0	0	19	34	47	50	0	0	0	0	50	0	100	5	95	0	0	0	0	100															
18	V 0024-6	0	1	17	25	58	0	0	0	0	0	100	0	98	4	96	0	0	0	2	98															
19	V 0056-1	0	1	8	17	74	20	0	0	0	0	80	0	100	18	82	0	0	0	0	100															
20	V 0123-25	0	2	9	28	61	40	0	0	0	0	60	0	100	3	97	0	0	0	7	97															
21	W 1355-1	0	1	5	37	57	30	0	0	0	0	70	0	100	2	98	0	0	0	1	99															
22	W 1368	1	2	10	18	68	0	0	0	0	0	100	0	100	7	93	0	0	0	3	97															
23	W 1386	1	6	12	45	35	20	0	0	0	0	80	1	99	3	97	0	0	0	6	94															
24	W 1431	0	2	8	38	52	0	0	0	0	0	100	0	100	7	93	0	0	0	2	98															
25	Atlantic	0	0	9	22	68	30	0	0	0	0	70	0	100	12	88	0	4	0	0	96															
26	NorValley	2	2	15	36	45	20	0	0	0	0	80	0	99	2	98	0	1	0	0	99															
27	Snowden	0	0	9	11	80	20	0	0	0	0	80	0	100	4	96	0	0	0	3	97															
Gr. Cr. - Growth Crack, 2nd Gr. - Second Growth, Grn - Green																																				

Gr. Cr. - Growth Crack, 2nd Gr. - Second Growth, Grn - Green

North Central Regional Potato Variety Trial Table 11. Percent external defects and percent free (F) of defects.

Entry	Clone	NE						ON						WI						ND					
		Scab	Gr. Cr.	2ndGr.	Grn	Rot	Free	Scab	Gr. Cr.	2ndGr.	Grn	Rot	Free	Scab	Gr. Cr.	2ndGr.	Grn	Rot	Free	Scab	Gr. Cr.	2ndGr.	Grn	Rot	Free
RED																									
1	MN 17989 R	0	1	0	0	0	99	2	0	0	0	99	0	0	13	5	3	80	9	0	0	0	0	0	91
2	MN 17993 R	0	0	0	0	1	99	0	0	1	2	96	14	2	6	2	0	77	14	2	6	2	0	0	77
3	MN 18365 R	0	0	4	0	1	95	0	0	7	0	91	86	0	9	0	0	9	86	0	9	0	0	0	9
4	ND 3196-1 R	1	0	0	0	0	99	0	0	5	2	92	9	2	5	0	0	85	9	2	5	0	0	0	85
5	ND 3574-5 R	0	0	5	0	0	95	0	1	2	3	0	95	3	0	1	0	96	3	0	1	0	0	0	96
6	D. R. Norland	0	0	0	0	0	100	6	0	6	6	94	0	1	5	4	0	91	8	2	5	3	0	0	83
7	R. Pontiac	11	1	5	1	0	85	22	0	7	7	90	0	0	18	2	2	77	11	2	5	0	0	0	82
RUSSET / LONG																									
8	AO 87277-6	11	1	7	0	0	82						0	0	7	2	3	88	0	0	8	0	0	0	92
9	MN 18713 rus	0	19	0	0	0	81						0	0	11	0	2	87	2	0	8	0	0	0	90
10	ND 4093-4 rus	0	6	0	0	0	94	0	0	2	0	99	0	0	0	7	3	91	0	0	2	0	0	0	98
11	V 0168-3	7	0	0	0	0	93	0	0	2	0	99	0	0	7	3	2	88	0	0	2	0	0	0	98
12	R. Burbank	0	6	74	0	0	24	8	10	4	0	89	0	0	43	3	2	52	2	12	47	0	0	0	43
13	R. Norkotah	0	1	5	0	0	94	3	3	3	0	97	0	0	6	4	4	86	0	0	14	2	0	0	84
ROUND WHITE																									
14	MSA 091-1	0	0	21	3	0	79	15	3	5	28	80	0	0	10	1	0	89	2	2	12	3	0	0	82
15	MSB 107-1	0	0	0	0	1	99	3	0	11	14	90	0	0	5	1	1	94	0	2	2	0	0	0	96
16	MSE 018-1	6	1	6	0	0	87	0	0	7	10	95	0	0	2	5	0	93	21	2	5	0	0	0	72
17	MSF 373-8	0	0	0	0	0	100	25	0	13	0	88	0	1	1	1	0	96	5	0	6	3	0	0	86
18	V 0024-6	16	0	0	0	0	84	0	0	0	0	100	0	0	5	2	1	93	2	2	5	0	0	0	91
19	V 0056-1	2	0	3	2	0	93	3	0	3	6	96	0	0	5	1	1	92	11	0	6	8	0	0	75
20	V 0123-25	0	2	0	0	0	98	0	0	0	2	99	0	0	1	0	0	99	6	0	8	5	0	0	81
21	W 1355-1	0	0	1	0	0	99	2	2	1	2	93	0	0	1	4	0	95	9	0	8	2	0	0	81
22	W 1368	3	0	0	0	0	97	3	5	2	0	94	0	0	1	3	4	92	3	0	0	0	0	0	97
23	W 1386	0	0	7	2	0	91	5	2	2	5	94	0	1	5	1	1	92	14	0	8	0	2	0	76
24	W 1431	0	0	2	3	0	95	0	0	0	0	100	0	0	1	0	0	98	5	0	2	0	0	0	93
25	Atlantic	37	0	1	0	0	63	3	0	3	16	93	0	0	8	3	2	87	18	4	6	2	0	0	70
26	NorValley	0	1	8	2	0	89	16	0	14	0	87	0	1	10	6	3	80							
27	Snowden	0	0	3	2	0	95	0	0	0	2	98	0	0	10	3	0	88	11	0	0	5	0	0	84

Gr. Cr. - Growth Crack, 2nd Gr. - Second Growth, Grn - Green

North Central Regional Potato Variety Trial Table 12. Common scab severity and coverage.

Entry No.	Clone	Irrigated										Dryland									
		AB		IA		MB		MI		MN		NE		ON		WI		ND		OH	
		Sev	Cov	Sev	Cov	Sev	Cov	Sev	Cov	Sev	Cov	Sev	Cov	Sev	Cov	Sev	Cov	Sev	Cov	Sev	Cov
RED																					
1	MN 17989 R			2	2	1	T	0.0		5	1			1	T	1	1	1	1	0	0
2	MN 17993 R			1	1	1	T	0.0		5	3					1	T	1	3	0	0
3	MN 18365 R	1	T	3	1	2	1	0.0		4	2			3	3	1	T	3	4	0	0
4	ND 3196-1 R	1	T	3	2	1	T	1.5		4	2	3.5	1.0	1	T	1	T	1	T	0	0
5	ND 3574-5 R	1	T	2	2	1	T	2.2		5	2			1	T	1	T	1	T	0	0
6	D. R. Norland	1	T	2	1	1	T	3.0		2	1			1	2	1	T	1	T	0	0
7	R. Pontiac	1	1	3	3	1	1	0.0		5	4	3.5	3.0	1	3	1	T	1	1	0	0
RUSSET / LONG																					
8	AO 87277-6			3	5			0.0		5	3	3.5	3.0			1	T	0	0		
9	MN 18713 rus			0	0	0	0	0.0		0	0					1	T	0	0	0	0
10	ND 4093-4 rus	1	T	1	T	0	0	0.0		3	2			1	T	1	T	0	0	0	0
11	V 0168-3	1	T	0	0	0	0	3.0		5	3	3.5	3.0	1	T	0	0	0	0	0	0
12	R. Burbank	1	T	0	0	0	0	1.0		0	0			1	T	0	0	0	0	0	0
13	R. Norkotah	1	1	0	0	0	0	2.5		3	2			1	T	1	T	0	0	0	0
ROUND WHITE																					
14	MSA 091-1	1	1	0	0	1	T	0.5		0	0			1	T	0	0	1	T	0	0
15	MSB 107-1	1	T	1	T	1	T	2.5		4	4			1	T	1	T	1	T	0	0
16	MSE 018-1	1	T	1	T	1	T	2.2		5	4	3.5	2.0	1	T	0	0	1	T	0	0
17	MSF 373-8	1	1	3	2	1	T	2.2		4	4			1	1	1	T	1	T	0	0
18	V 0024-6	1	T	0	0	0	0	3.0		5	3	3.0	4.0	1	T	0	0	1	T	0	0
19	V 0056-1	1	T	1	T	0	0	2.0		5	5	1.5	1.0	1	T	1	T	1	T	0	0
20	V 0123-25	1	1	1	T	0	0	2.0		5	3			1	T	1	T	1	T	0	0
21	W 1355-1	1	1	1	T	0	0	3.0		5	3			1	T	0	0	1	T	0	0
22	W 1368	1	1	0	0	0	0	3.0		5	3	4.0	1.0	1	T	0	0	1	T	0	0
23	W 1386	1	T	1	T	1	T	2.5		4	3			1	T	1	T	1	T	0	0
24	W 1431	1	T	0	0	0	0	2.5		4	3			1	T	0	0	1	T	0	0
25	Atlantic	1	T	2	1	0	0	3.3		4	2	3.5	3.0	1	T	1	T	1	T	0	0
26	NorValley	1	1	1	T	1	T	0.0		5	2			1	1	1	T	1	T	0	0
27	Snowden	1	T	1	T	0	0	3.0		5	2			1	T	1	T	1	T	0	0
Severity- 1 (small, superficial) - 5 (Very large pustules, Deep holes); Coverage- T (trace), 1 (1-20%) - 5 (80-100%); MI & NE 1-5 (severe).																					

Severity- 1 (small, superficial) - 5 (Very large pustules, Deep holes); Coverage- T (trace), 1 (1-20%) - 5 (80-100%); MI & NE 1-5 (severe).

North Central Regional Potato Variety Trial Table 13. Tuber specific gravity at harvest.

Entry No.	Clone	Irrigated							Dryland							
		AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank	
RED																
1	MN 17989 R		1.079	1.069	1.070	1.083		1.070	1.074	1.074	1.090	1.071	1.081	1.076	1	
2	MN 17993 R		1.070	1.073	1.065	1.076		1.070	1.071	1.071	1.087	1.075	1.081	1.073	3	
3	MN 18365 R	1.075	1.063	1.061	1.059	1.058		1.060	1.065	1.063	1.073	1.074	1.074	1.065	6	
4	ND 3196-1 R	1.082	1.077	1.079	1.068	1.074		1.071	1.076	1.075	1.078	1.073	1.076	1.075	2	
5	ND 3574-5 R	1.067	1.063	1.070	1.056	1.062		1.061	1.063	1.063	1.077	1.066	1.072	1.065	7	
6	D. R. Norland	1.071	1.061	1.068	1.062	1.061		1.066	1.066	1.065	1.087	1.078	1.083	1.069	4	
7	R. Pontiac	1.070	1.063	1.064	1.064	1.062		1.063	1.065	1.064	1.074	1.069	1.072	1.066	5	
	Mean	1.073	1.068	1.069	1.063	1.068		1.066	1.069	1.068	1.081	1.072	1.077	1.070		
RUSSET / LONG																
8	AO 87277-6		1.073			1.090	1.090		1.082	1.084	1.094		1.094	1.086	1	
9	MN 18713 rus			1.074	1.086	1.094	1.092		1.089	1.087	1.084	1.083	1.084	1.086	2	
10	ND 4093-4 rus	1.086	1.076	1.080	1.071	1.070		1.072	1.075	1.076	1.082	1.075	1.079	1.076	4	
11	V 0168-3	1.078	1.073	1.074	1.067	1.064	1.076	1.072	1.067	1.071	1.082	1.075	1.079	1.073	6	
12	R. Burbank	1.089	1.082	1.085	1.078	1.086	1.071	1.080	1.080	1.082	1.075	1.082	1.079	1.081	3	
13	R. Norkotah	1.080	1.084	1.079	1.069	1.071	1.071	1.072	1.071	1.075	1.082	1.073	1.078	1.075	5	
	Mean	1.083	1.078	1.078	1.074	1.079	1.079	1.075	1.077	1.079	1.083	1.078	1.082	1.079		
ROUND WHITE																
14	MSA 091-1	1.091	1.095	1.095	1.087	1.087	1.089	1.086	1.088	1.090	1.098	1.089	1.094	1.090	4	
15	MSB 107-1	1.080	1.073	1.084	1.076	1.087	1.077	1.075	1.080	1.079	1.088	1.079	1.084	1.080	10	
16	MSE 018-1	1.096	1.085	1.094	1.089	1.099	1.091	1.087	1.091	1.091	1.104	1.087	1.096	1.092	1	
17	MSF 373-8	1.085	1.083	1.092	1.078	1.091	1.087	1.083	1.080	1.085	1.094	1.086	1.090	1.086	9	
18	V 0024-6	1.085	1.078	1.076	1.065	1.097	1.082	1.073	1.072	1.079	1.089	1.078	1.084	1.080	13	
19	V 0056-1	1.093	1.085	1.087	1.076	1.067	1.077	1.079	1.069	1.079	1.093	1.085	1.089	1.081	11	
20	V 0123-25	1.085	1.085	1.084	1.072	1.069	1.081	1.077	1.078	1.079	1.097	1.079	1.088	1.081	12	
21	W 1355-1	1.095	1.084	1.092	1.085	1.095	1.083	1.087	1.081	1.088	1.096	1.081	1.089	1.088	6	
22	W 1368	1.089	1.092	1.096	1.088	1.094	1.095	1.085	1.081	1.090	1.105	1.086	1.096	1.091	3	
23	W 1386	1.086	1.087	1.091	1.083	1.088	1.087	1.088	1.084	1.087	1.088	1.088	1.088	1.087	8	
24	W 1431	1.091	1.092	1.093	1.086	1.102	1.084	1.078	1.084	1.089	1.097	1.087	1.092	1.089	5	
25	Atlantic	1.095	1.088	1.104	1.088	1.086	1.090	1.091	1.087	1.091	1.090	1.091	1.091	1.091	2	
26	NorValley	1.087	1.083	1.077	1.077	1.079	1.080	1.079	1.076	1.080		1.082	1.082	1.080	14	
27	Snowden	1.098	1.086	1.096	1.081	1.096	1.083	1.078	1.091	1.089	1.086	1.086	1.086	1.088	7	
	Mean	1.090	1.085	1.090	1.081	1.088	1.085	1.082	1.082	1.085	1.094	1.085	1.089	1.086		
	Grand mean	1.085	1.079	1.082	1.075	1.081	1.083	1.076	1.077	1.079	1.088	1.080	1.084	1.080		

North Central Regional Potato Variety Trial Table 14. Chip and french fry processing quality at the USDA Potato Research Worksite, East Grand Forks, MN.

Chip 0 time storage / 48 F. / Direct							Chip 0 time storage / 48 F. / Direct						
Clone	Loc	Color		SR (mg/g)	GLU (mg/g)	Sp. Gr.	Clone	Loc	Color		SR (mg/g)	GLU (mg/g)	Sp. Gr.
		AGT	Vis						AGT	Vis			
MSA 091-1	AB						V 0056-1	AB	61	1	1.535	0.598	1.094
MSA 091-1	MB	58	2	1.700	1.301	1.097	V 0056-1	MB	61	1	0.719	0.875	1.087
MSA 091-1	MI	65	1	1.398	0.044	1.096	V 0056-1	MI	62	1	0.799	0.032	1.088
MSA 091-1	MN	63	1	1.341	0.103	1.087	V 0056-1	MN	60	1	1.005	0.070	1.067
MSA 091-1	ND	64	1	1.210	0.178	1.094	V 0056-1	ND	64	1	0.854	0.193	1.085
MSA 091-1	NE	63	1	1.613	0.159	1.089	V 0056-1	NE	62	1	1.341	0.058	1.077
MSA 091-1	OH	63	1	1.283	0.104	1.089	V 0056-1	OH	65	1	0.985	0.206	1.087
MSA 091-1	ON	60	1	1.820	0.137	1.100	V 0056-1	ON	67	1	1.110	0.143	1.087
MSA 091-1	WI	51	3	2.800	1.568	1.095	V 0056-1	WI	60	1	0.898	0.349	1.079
MSB 107-1	AB	50	3	1.480	2.012	1.081	V 0123-25	AB	60	1	1.503	0.271	1.088
MSB 107-1	MB	61	1	1.558	1.251	1.088	V 0123-25	MB	56	2	1.067	0.749	1.080
MSB 107-1	MI						V 0123-25	MI	65	1	1.238	0.062	1.081
MSB 107-1	MN	56	2	1.715	0.435	1.087	V 0123-25	MN	61	1	0.887	0.038	1.069
MSB 107-1	ND	58	2	1.122	0.382	1.083	V 0123-25	ND	67	1	0.933	0.066	1.088
MSB 107-1	NE	63	1	1.600	0.082	1.077	V 0123-25	NE	63	1	1.286	0.052	1.081
MSB 107-1	OH	56	2	1.471	0.231	1.080	V 0123-25	OH	62	1	0.965	0.043	1.077
MSB 107-1	ON	49	3	1.957	0.233	1.083	V 0123-25	ON	69	1	1.128	0.029	1.086
MSB 107-1	WI	47	3	4.056	1.093	1.092	V 0123-25	WI	60	1	2.193	0.312	1.091
MSE 018-1	AB	56	2	1.966	0.575	1.117	W 1355-1	AB					
MSE 018-1	MB	55	2	1.068	1.300	1.099	W 1355-1	MB	65	1	0.954	0.067	1.095
MSE 018-1	MI	63	1	1.337	0.054	1.104	W 1355-1	MI	65	1	0.749	0.022	1.095
MSE 018-1	MN	58	2	1.600	0.244	1.099	W 1355-1	MN	64	1	0.954	0.025	1.095
MSE 018-1	ND	57	2	1.297	0.782	1.100	W 1355-1	ND	64	1	0.926	0.054	1.088
MSE 018-1	NE	59	2	1.985	0.569	1.091	W 1355-1	NE	58	2	1.037	0.016	1.083
MSE 018-1	OH	63	1	2.113	0.268	1.092	W 1355-1	OH	64	1	0.902	0.019	1.084
MSE 018-1	ON	60	1	1.632	0.111	1.100	W 1355-1	ON	65	1	1.224	0.031	1.091
MSE 018-1	WI	50	3	2.640	2.127	1.101	W 1355-1	WI	59	2	1.132	0.286	1.092
MSF 373-8	AB	48	3	0.873	2.548	1.091	W 1368	AB	45	4	1.838	5.060	1.088
MSF 373-8	MB	48	3	1.091	2.562	1.096	W 1368	MB	51	3	1.215	1.489	1.099
MSF 373-8	MI	65	1	1.485	0.073	1.095	W 1368	MI	61	1	1.398	0.098	1.095
MSF 373-8	MN	61	1	1.600	0.049	1.091	W 1368	MN	60	1	1.189	0.148	1.094
MSF 373-8	ND	58	2	0.846	0.473	1.156	W 1368	ND	59	1	1.114	0.320	1.096
MSF 373-8	NE	61	1	1.367	0.062	1.087	W 1368	NE	60	1	1.130	0.037	1.095
MSF 373-8	OH	60	1	1.668	0.234	1.086	W 1368	OH	60	1	0.972	0.180	1.091
MSF 373-8	ON	64	1	1.453	0.073	1.086	W 1368	ON	61	1	0.973	0.281	1.087
MSF 373-8	WI	49	3	3.667	1.710	1.099	W 1368	WI	55	2	1.458	0.208	1.096
V 0024-6	AB	45	3	1.030	2.613	1.079	W 1386	AB					
V 0024-6	MB	56	2	1.082	2.067	1.077	W 1386	MB	62	1	1.535	0.297	1.092
V 0024-6	MI	65	1	1.636	0.124	1.070	W 1386	MI	64	1	1.127	0.036	1.096
V 0024-6	MN	60	2	2.104	0.307	1.097	W 1386	MN	58	2	1.663	0.063	1.088
V 0024-6	ND	55	2	1.666	0.780	1.080	W 1386	ND	61	1	1.153	0.080	1.084
V 0024-6	NE			1.255	0.100	1.082	W 1386	NE	63	1	1.633	0.077	1.087
V 0024-6	OH	59	2	1.032	0.375	1.071	W 1386	OH	65	1	1.432	0.067	1.089
V 0024-6	ON	64	1	1.319	0.070	1.089	W 1386	ON	63	1	1.480	0.054	1.093
V 0024-6	WI	49	3	2.217	1.212	1.089	W 1386	WI	53	3	1.998	0.617	1.085

North Central Regional Potato Variety Trial Table 14. Chip and french fry processing quality at the USDA Potato Research Worksite, East Grand Forks, MN.

Chip 0 time storage / 48 F. / Direct							French fry 0 time storage / 48 F. / Direct							
Cione	Loc	Color		SR (mg/g)	GLU (mg/g)	Sp. Gr.	Clone	Loc	% Len limp			SR (mg/g)	GLU (mg/g)	Sp. Gr.
		AGT	Vis						Col	Len	limp			
W 1431	AB						AO87277-6	MN	00	4-5	5	2.113	0.164	1.090
W 1431	MB	61	1	1.600	0.222	1.096	AO87277-6	ND	000	3-4	10	1.503	0.388	1.093
W 1431	MI						AO87277-6	NE	000	3	10			1.090
W 1431	MN	57	2	3.658	0.077	1.102	AO87277-6	WI	1	2-3	10	0.710	1.577	1.091
W 1431	ND	58	2	1.824	0.059	1.093								
W 1431	NE	59	2	3.098	0.083	1.084	MN 18713rus	MN	00	3-4	5	2.002	0.146	1.094
W 1431	OH	65	1	1.364	0.024	1.087	MN 18713rus	ND	00	3-4	10	1.480	0.446	1.090
W 1431	ON	66	1	1.089	0.033	1.087	MN 18713rus	NE	000	2-3	10	1.751	0.039	1.092
W 1431	WI	55	2	2.979	0.309	1.095	MN 18713rus	OH	0	2-3	5	1.758	1.105	1.095
							MN 18713rus	WI	0	3-4	10	1.260	1.451	1.101
Atlantic	AB	56	2	1.847	1.085	1.103								
Atlantic	MB	56	2	1.664	1.338	1.106	ND 4093-4rus	AB	0	3-4	15	0.495	2.603	1.078
Atlantic	MI	63	1	1.265	0.043	1.101	ND 4093-4rus	MB	0	3-4	10	1.035	1.095	1.082
Atlantic	MN	57	2	1.242	0.117	1.086	ND 4093-4rus	MN	00	4-5	20	1.269	0.259	1.070
Atlantic	ND	55	2	1.146	1.687	1.081	ND 4093-4rus	ND	00	3-4	10	1.378	0.956	1.081
Atlantic	NE	60	1	1.109	0.050	1.090	ND 4093-4rus	NE	00	3-4	10	1.255	0.224	1.072
Atlantic	OH	63	1	1.102	0.089	1.097	ND 4093-4rus	OH	0	3-4	5	0.933	0.522	1.077
Atlantic	ON	64	1	1.595	0.078	1.098	ND 4093-4rus	WI	1	3-4	10	1.044	1.629	1.089
Atlantic	WI	52	3	1.865	1.048	1.088								
							V 0168-3	AB	1	2-3	10	0.789	2.622	1.084
NorValley	AB	60	1	1.728	0.587	1.090	V 0168-3	MB	1	2-3	5	0.823	3.211	1.075
NorValley	MB	60	1	0.863	0.899	1.078	V 0168-3	MN	1	3-4	25	2.374	1.398	1.064
NorValley	MI	66	1	0.916	0.105	1.090	V 0168-3	ND	0	2-3	5	1.256	1.934	1.073
NorValley	MN	63	1	0.968	0.056	1.079	V 0168-3	NE	1	2-3	20	1.213	1.047	1.076
NorValley	ND						V 0168-3	OH	0	2-3	5	0.947	1.517	1.076
NorValley	NE	58	2	1.132	0.073	1.080	V 0168-3	WI	2	2-3	15	0.333	2.361	1.081
NorValley	OH	61	1	1.033	0.070	1.081								
NorValley	ON	63	1	1.030	0.051	1.091	R. Burbank	AB	1	3-4	10	0.394	2.681	1.091
NorValley	WI	61	1	0.862	0.386	1.093	R. Burbank	MB	0	3-4	10	0.848	2.883	1.088
							R. Burbank	MN	00	5-6	10	1.540	0.368	1.086
Snowden	AB	61	1	1.893	0.158	1.099	R. Burbank	ND	0	3-4	10	0.953	2.063	1.072
Snowden	MB	61	1	1.526	0.226	1.099	R. Burbank	NE	00	4-5	10	1.382	0.961	1.071
Snowden	MI	65	1	1.318	0.019	1.093	R. Burbank	OH	0	3-4	10	1.655	0.198	1.080
Snowden	MN	63	1	1.522	0.024	1.096	R. Burbank	WI	0	3-4	10	1.162	2.214	1.092
Snowden	ND	59	1	1.265	0.690	1.086								
Snowden	NE	62	1	1.618	0.039	1.083	R. Norkotah	AB	1	3-4	10	0.678	3.470	1.084
Snowden	OH	62	1	1.346	0.036	1.089	R. Norkotah	MB	0	3-4	5	0.828	2.163	1.083
Snowden	ON	67	1	1.151	0.033	1.097	R. Norkotah	MN	0	3-4	25	1.223	0.623	1.071
Snowden	WI	58	2	1.494	0.243	1.104	R. Norkotah	ND	2	3-4	10	0.499	2.429	1.080
							R. Norkotah	NE	0	3-4	15	1.112	0.557	1.071
							R. Norkotah	OH	1	3-4	10	1.221	1.218	1.073
							R. Norkotah	WI	1	3-4	5	0.605	2.076	1.078

North Central Regional Potato Variety Trial Table 15. Color of processed products, chips and french fries (processed at state location).

Entry No.	Clone	Irrigated						Dryland	
		AB	MB	MI	MN	NE	ON	WI	OH
RED									
1	MN 17989 R	43	23.6	3.5		3		8.3	2-5
2	MN 17993 R	47.7	28.2	2.5		2		5.4	4
3	MN 18365 R	37.8	22.7	3.0		4		8.2	3-4
4	ND 3196-1 R	38.5	21.1	3.0		3		8.2	3-5
5	ND 3574-5 R	35.8	22.4	3.0		3		9.2	4-5
6	D. R. Norland	45.8	27.7	3.0		3		8.3	3-5
7	R. Pontiac	36	25.3	4.0		4		9.3	3-5
RUSSET / LONG									
8	AO 87277-6				00	2		6.8	
9	MN 18713 rus			1.5	00	2		5.9	3
10	ND 4093-4 rus	40.3	42.2	2.5	00	2		6.9	3-5
11	V 0168-3	41	22.1	3.0	1	4		8.6	5
12	R. Burbank	45.8	32.8	1.5	00	3		7.6	3-4
13	R. Norkotah	37	25.3	3.0	0	4		9.2	5
ROUND WHITE									
14	MSA 091-1	56	41.3	1.0	63	1	60.9	5.5	2-3
15	MSB 107-1	50.8	38.5	1.0	56	1	61.6	6.0	2-4
16	MSE 018-1	56	43.7	1.5	58	2	62.7	6.1	4
17	MSF 373-8	47.8	32.4	1.5	61	2	59.7	6.4	2-3
18	V 0024-6	54.8	27.4	1.5	60	1	58.8	6.5	2-4
19	V 0056-1	59.5	39.4	1.5	60	2	62.1	3.5	3
20	V 0123-25	64	48.7	1.5	61	1	59.5	3.2	2
21	W 1355-1	58.3	59.3	1.0	64	1	62	3.3	2-3
22	W 1368	46.8	35.7	1.0	60	1	54.7	4.1	2-3
23	W 1386	57.3	40.2	1.0	58	1	61.2	4.9	2
24	W 1431	62.3	46.7	1.0	57	1	62.2	3.3	1
25	Atlantic	57.5	34.7	1.5	57	1	60.5	6.3	1-2
26	NorValley	60.8	47.9	1.0	63	1	59.8	4.0	2
27	Snowden	56.8	38.1	1.0	63	1	64	4.0	3

North Central Regional Potato Variety Trial Table 16. Merit ranking within each market class 1st, 2nd, and 3rd place.

Entry No. Clone	Irrigated							Dryland			Summary No. of Places		
	AB	1A	MB	MI	MN	NE	ON	WI	ND		1st	2nd	3rd
RED													
1 MN 17989 R									2			1	
2 MN 17993 R					1						1		
3 MN 18365 R													
4 ND 3196-1 R			2	2	3		3		3			2	3
5 ND 3574-5 R				1	2				1		2	1	
6 D. R. Norland			3	3			2					1	2
7 R. Pontiac			1				1				2		
RUSSET / LONG													
8 AO 87277-6									2			1	
9 MN 18713 rus					2							1	
10 ND 4093-4 rus	1						2	1	1		3	1	
11 V 0168-3	2	1	3		1		1				3	1	1
12 R. Burbank	3		1								1		1
13 R. Norkotah		2	2		3		3	2	3			3	3
ROUND WHITE													
14 MSA 091-1		2										1	
15 MSB 107-1			3					2	2			2	1
16 MSE 018-1				1	3		2	1			2	1	1
17 MSF 373-8									3				1
18 V 0024-6		1			1				1		3		
19 V 0056-1	3				2		3					1	2
20 V 0123-25	1										1		
21 W 1355-1													
22 W 1368													1
23 W 1386					3								
24 W 1431					2							1	
25 Atlantic	2		2				1						1
26 NorValley											1	2	
27 Snowden													1

Merit ranking within market classifications – 1st, 2nd, and 3rd place.

North Central Regional Potato Variety Trial Table 17. Comments.

Entry		AB	MB	MI	MN	ON	WI
No.	Clone						
RED							
1	MN 17989 R	Avg std cnt 8.5	Avg std cnt 1.0	Not uniform	Good color, poor skin	3 of 5 entries exposed to	dk good color, some prot. eyes
2	MN 17993 R	Avg std cnt 6.3	Avg std cnt 0.3		Attr, unif, good color, skins	CIPC - poor?, good color	med. color, lenticels, smooth
3	MN 18365 R	Avg std cnt 12.8	Avg std cnt 1.0		Ex color, skins, oval, market?	scab	dark color, smooth, good color
4	ND 3196-1 R				Attr, good color, skins	good color,	med color, buckskin, deep eyes
5	ND 3574-5 R			Nice red!	Attr, lg size		med. color, russetting, GrCr
6	D. R. Norland				Ok, good skin and color		med color,
7	R. Pontiac					knobby, rough	light color, deep eyes, rough
RUSSET / LONG							
8	AO 87277-6				Smooth, attr, some curves		med dark, pointed
9	MN 18713 rus	Avg std cnt 3.0	Avg std cnt 0.3	Not uniform	Attr. needs size, smooth		dark, nice
10	ND 4093-4 rus		attractive tubers	Blocky, ok merit	Not FF, short, Ex skin, attr	very attractive	dark, nice, bruise
11	V 0168-3			Too round	Ex, attr, keep,	early maturity- ex prospect	med dark, too wide, pear
12	R. Burbank			Small, misshape	Lg, rough, knobs		light, knobby, pointed
13	R. Norkotah			Nice type	V. attr, keep, smooth		med dark, nice, green bud end
ROUND WHITE							
14	MSA 091-1		rough-deep eyes		Attr, good skin, keep	4% thumbnail cracks	rough
15	MSB 107-1				Lg get rough, end fold, rot++	2nd year good performance	folded end, rough, lenticels
16	MSE 018-1		deep eye & stem end		Lg smooth, market??	2% thumbnail cracks	nice, smooth, flat, some pear
17	MSF 373-8			Knobs	Lg can GrCr, end fold,	storage potential?, sm skin	deep eyes, lenticels, rough, bruise
18	V 0024-6			Scab	Attr, lg size, unif, good skin	storage potential?	smooth, deep bud end
19	V 0056-1				V. attractive		lenticels, Rhiz, flat, low solids
20	V 0123-25				Smooth, attr, keep		smooth, rot
21	W 1355-1	Avg std cnt 13.0	Avg std cnt 2.3		Attr appr, some small, unif, K	long storage 99-00, too small	smooth, Rhizoctonia,
22	W 1368		short; deep eyes	Scab	Good, size, attr, good skin, K	W entries exposed to	netting, smooth
23	W 1386				Light skin, rot here	CIPC - disregard data?, points	lenticels, Rhizoctonia, bruise
24	W 1431		Avg std cnt 5.0	Skinny, not rnd	Flat, skin sloughs	best overall numbers	flat, some scab
25	Atlantic				Attractive, smooth		deep bud end, Rhiz, heat necr, blkspot
26	NorValley				Lg, poor skin		white, smooth, Rhizoctonia
27	Snowden				End fold, good skin, keep		rough, Rhizoctonia, deep eyes

North Central Regional Potato Variety Trial Table 18. Storage potato chip and french fry color, specific gravity, and sugars from the 1999 NCRPVT. Processing quality data performed at the USDA/ARS - Potato Research Worksite, East Grand Forks, MN

Clone	Loc	0/48/D			3/48/D			3/42/D			5/48/D			5/42/D			7/48/D			7/42/D			7/42/2(65)			
		Color		SR	GLU (mg/g)	SpGr	Color		AGT	Vis	Color		AGT	Vis	Color		AGT	Vis	Color		AGT	Vis	Color		AGT	Vis
		AGT	Vis				AGT	Vis			AGT	Vis			AGT	Vis			AGT	Vis			AGT	Vis		
MSE 018-1	ALB	61.5	2	1.719	0.175	1.098																				
MSE 018-1	MI	65.3	1	1.146	0.031	1.094	64.8	1	54.7	2	63.0	1	62.0	1	57.0	2	62.0	1	57.0	2	60.0	1	60.0	1	60.0	1
MSE 018-1	MN	47.3	3	0.505	2.351	1.080	49.7	2	42.0	3	62.0	1	54.0	3	44.0	4	54.0	3	46.0	3	46.0	3	46.0	3	46.0	3
MSE 018-1	MNB	63.0	2	1.727	0.251	1.068	56.3	2			61.0	1	59.0	2	61.0	1	59.0	2	58.0	2	62.0	1	62.0	1	62.0	1
MSE 018-1	ND	63.4	2	0.876	0.832	1.085	62.1	1	48.3	2	64.0	1	59.0	2	61.0	1	59.0	2	58.0	2	60.0	1	60.0	1	60.0	1
MSE 018-1	NEB	61.5	2	1.719	0.175	1.098	63.7	1	54.4	2	59.0	2	60.0	1	60.0	1	59.0	2	59.0	2	58.0	2	58.0	2	58.0	2
MSE 018-1	OH	63.2	2	2.063	0.089	1.087	62.9	1	51.4	2	63.0	1	62.0	1	59.0	2	62.0	1	58.0	2	59.0	2	59.0	2	59.0	2
MSE 018-1	ONT	54.8	3	0.705	0.692	1.103	60.4	1	47.7	2	60.0	1	54.0	3	55.0	2	54.0	3	57.0	2	57.0	2	57.0	2	57.0	2
MSE 018-1	W1	53.1	3	0.735	1.083	1.092	60.9	1	50.7	3	62.0	1	60.0	1	54.0	3	60.0	1	58.0	2	58.0	2	58.0	2	58.0	2
MSE 263-10	ALB	62.0	2	2.118	0.239	1.087																				
MSE 263-10	MI	66.6	1	1.948	0.042	1.088	62.4	1	56.8	2	60.0	2	63.0	1	56.0	2	63.0	1	58.0	2	58.0	2	58.0	2	58.0	2
MSE 263-10	MN	42.8	3	1.958	2.025	1.066	56.2	2	48.8	3	58.0	2	53.0	3	51.0	3	53.0	3	56.0	2	51.0	3	51.0	3	51.0	3
MSE 263-10	MNB	63.7	2	1.847	0.192	1.099	61.6	1	59.5	1	61.0	1	60.0	1	56.0	2	60.0	1	59.0	2	59.0	2	59.0	2	59.0	2
MSE 263-10	ND	64.5	1	1.953	0.131	1.081	59.3	2	47.2	3	63.0	1	60.0	1	54.0	3	60.0	1	54.0	3	62.0	1	62.0	1	62.0	1
MSE 263-10	NEB	62.0	2	2.118	0.239	1.087	61.7	1	53.4	2	61.0	1	62.0	1	51.0	3	62.0	1	60.0	1	61.0	1	61.0	1	61.0	1
MSE 263-10	OH	63.0	2	1.985	0.061	1.061	62.2	1	55.9	2	61.0	1	58.0	2	59.0	2	58.0	2	60.0	1	67.0	1	67.0	1	67.0	1
MSE 263-10	ONT	62.1	2	1.778	0.085	1.071	63.5	1	54.2	2	59.0	2	60.0	1	51.0	3	60.0	1	55.0	3	59.0	2	59.0	2	59.0	2
MSE 263-10	W1	58.4	2	1.619	0.612	1.064	59.7	1	52.1	2	61.0	1	60.0	1	53.0	3	60.0	1	49.0	3	57.0	2	57.0	2	57.0	2
ND 2470-27	ALB	63.6	2	0.968	0.093	1.076																				
ND 2470-27	MI	66.3	1	0.677	0.028	1.083	63.5	1	63.0	1	65.0	1	58.0	2	60.0	2	58.0	2	60.0	1	62.0	1	62.0	1	62.0	1
ND 2470-27	MN	59.5	2	0.378	0.518	1.067	54.8	2	46.8	3	56.0	2	61.0	1	47.0	3	61.0	1	48.0	3	57.0	2	57.0	2	57.0	2
ND 2470-27	MNB	66.4	1	0.534	0.318	1.087	67.8	1	55.2	1	63.0	1	62.0	1	57.0	2	62.0	1	63.0	1	60.0	1	60.0	1	60.0	1
ND 2470-27	ND	64.9	1	1.085	0.446	1.089	61.0	2	55.5	3	63.0	1	62.0	1	55.0	2	62.0	1	58.0	2	61.0	1	61.0	1	61.0	1
ND 2470-27	NEB	63.6	2	0.968	0.093	1.076	64.1	2	58.3	2	55.0	2	63.0	1	52.0	3	63.0	1	60.0	1	62.0	1	62.0	1	62.0	1
ND 2470-27	OH	63.7	2	0.797	0.023	1.083	61.6	1	57.6	1	63.0	1	63.0	1	63.0	1	63.0	1	58.0	2	59.0	2	59.0	2	59.0	2
ND 2470-27	ONT	60.9	2	0.901	0.041	1.083	60.8	1	46.1	3	61.0	1	60.0	1	57.0	2	60.0	1	59.0	2	56.0	2	56.0	2	56.0	2
ND 2470-27	W1	64.2	1	0.673	0.142	1.079					59.0	2	63.0	1	52.0	3	63.0	1	62.0	1	58.0	2	58.0	2	58.0	2

North Central Regional Potato Variety Trial Table 18. Storage potato chip and french fry color, specific gravity, and sugars from the 1999 NCRPVT. Processing quality data performed at the USDA/ARS - Potato Research Worksite, East Grand Forks, MN

Clone	Loc	0/48/D			3/48/D			3/42/D			5/48/D			5/42/D			7/48/D			7/42/D			7/42/2(65)			
		Color		SR	GLU (mg/g)	SpGr	Color		AGT	Vis	Color		AGT	Vis	Color		AGT	Vis	Color		AGT	Vis	Color		AGT	Vis
		AGT	Vis				AGT	Vis			AGT	Vis			AGT	Vis			AGT	Vis			AGT	Vis		
W 1355-1	ALB	59.9	2	1.522	0.070	1.062																				
W 1355-1	MI	66.6	1	0.992	0.019	1.089	64.7	1	60.3	1	62.0	1	62.0	1	62.0	1	60.0	1	61.0	1	61.0	1	59.0	2	59.0	2
W 1355-1	MN	57.4	2	0.989	0.588	1.069	49.5	2	48.8	3	61.0	1	61.0	1	53.0	2	59.0	2	49.0	3	49.0	3	48.0	3	48.0	3
W 1355-1	MNB	64.2	1	0.983	0.029	1.109	61.4	1	64.3	1	61.0	1	61.0	1	60.0	1	58.0	2	62.0	1	62.0	1	60.0	1	60.0	1
W 1355-1	ND	60.7	2	1.563	0.052	1.094	62.2	1	57.3	1	59.0	2	60.0	1	60.0	1	59.0	2	59.0	2	59.0	2	59.0	2	59.0	2
W 1355-1	NEB	59.9	2	1.522	0.070	1.062	58.8	1	56.6	1	56.0	2	57.0	2	57.0	2	60.0	1	58.0	2	58.0	2	57.0	2	57.0	2
W 1355-1	OH	61.2	2	0.854	0.022	1.072	62.0	1	58.0	1	63.0	1	61.0	1	61.0	1	58.0	2	58.0	2	58.0	2	60.0	1	60.0	1
W 1355-1	ONT	61.3	2	1.106	0.019	1.084	61.3	1	56.6	2	58.0	2	56.0	2	56.0	2	58.0	2	61.0	1	61.0	1	57.0	2	57.0	2
W 1355-1	WI	64.1	2	0.773	0.055	1.079	59.7	1	59.7	1	59.0	2	59.0	2	59.0	2	61.0	1	61.0	1	61.0	1	64.0	1	64.0	1
W 75-30	ALB	61.2	2	1.403	0.060	1.085																				
W 75-30	MI	66.8	1	0.873	0.029	1.061	62.1	1	53.0	2	63.0	1	63.0	1	57.0	2	57.0	2	51.0	3	51.0	3	52.0	3	52.0	3
W 75-30	MN	50.3	3	0.209	1.169	1.066	55.6	2	44.5	3	57.0	2	57.0	2	46.0	3	51.0	3	47.0	3	47.0	3	44.0	4	44.0	4
W 75-30	MNB	64.6	1	0.823	0.040	1.098	63.2	1	63.3	1	60.0	2	60.0	2	56.0	2	59.0	1	59.0	2	59.0	2	61.0	1	61.0	1
W 75-30	ND	62.2	2	1.190	0.287	1.100	63.9	1	56.2	1	61.0	1	61.0	1	58.0	2	61.0	1	58.0	2	58.0	2	57.0	2	57.0	2
W 75-30	NEB	61.2	2	1.403	0.060	1.085	63.9	2	59.7	1	60.0	1	60.0	1	60.0	1	59.0	2	56.0	2	56.0	2	61.0	1	61.0	1
W 75-30	OH	63.1	2	0.948	0.152	1.069	64.6	1	58.6	1	61.0	1	61.0	1	56.0	2	57.0	2	57.0	2	57.0	2	57.0	2	57.0	2
W 75-30	ONT	63.9	2	1.143	0.026	1.087	65.3	1	42.8	3	61.0	1	61.0	1	57.0	2	60.0	1	57.0	2	57.0	2	60.0	1	60.0	1
W 75-30	WI	62.3	2	0.968	0.270	1.079	61.7	1	51.3	2	55.0	3	55.0	3	60.0	1	57.0	2	55.0	3	55.0	3	55.0	3	55.0	3

North Central Regional Potato Variety Trial Table 18. Storage potato chip and french fry color, specific gravity, and sugars from the 1999 NCRPVT. Processing quality data performed at the USDA/ARS - Potato Research Worksite, East Grand Forks, MN

Clone	Loc	0/48/D				3/48/D				3/42/D				5/48/D				5/42/D				7/48/D				7/42/D				7/42/2(65)			
		Color		SR	GLU	SpGr	Color		AGT	Vis	Color		AGT	Vis	Color		AGT	Vis	Color		AGT	Vis	Color		AGT	Vis	Color		AGT	Vis			
		AGT	Vis				AGT	Vis			AGT	Vis			AGT	Vis			AGT	Vis			AGT	Vis			AGT	Vis			AGT	Vis	AGT
Atlantic	ALB	61.8	2	1.545	0.220	1.100																											
	MI	67.7	1	0.712	0.028	1.101	62.1	1	56.0	2	55.0	2	55.0	2	54.0	3	59.0	2	53.0	3	53.0	3	54.0	3	54.0	3	54.0	3	54.0	3			
	MN	50.8	3	0.342	0.659	1.085	48.9	3	39.9	3	53.0	3	53.0	3	43.0	4	52.0	3	43.0	4	52.0	3	45.0	3	45.0	3	45.0	3	45.0	3			
	MNB	63.3	2	1.242	0.133	1.097	59.2	1	54.2	2	61.0	1	61.0	1	55.0	3	62.0	1	50.0	3	50.0	3	61.0	1	61.0	1	61.0	1	61.0	1			
	ND	58.4	2	1.476	0.322	1.078	57.8	1	54.2	2	59.0	2	59.0	2	52.0	3	62.0	1	52.0	3	52.0	3	62.0	1	62.0	1	62.0	1	62.0	1			
	NEB	61.8	2	1.545	0.220	1.100	59.2	1	47.4	3	48.0	3	48.0	3	54.0	3	59.0	2	61.0	1	61.0	1	58.0	2	58.0	2	58.0	2	58.0	2			
	OH	65.3	1	0.873	0.063	1.083	59.7	2	54.0	2	61.0	1	61.0	1	49.0	3	56.0	2	54.0	3	54.0	3	53.0	3	53.0	3	53.0	3	53.0	3			
	ONT	64.0	1	0.575	0.028	1.090	62.8	1	49.2	3	63.0	1	63.0	1	47.0	3	59.0	2	49.0	3	49.0	3	57.0	2	57.0	2	57.0	2	57.0	2			
	WI	56.4	2	0.616	0.679	1.086	59.8	1	49.3	3	55.0	3	55.0	3	48.0	3	50.0	3	46.0	3	46.0	3	49.0	3	49.0	3	49.0	3	49.0	3			
NorValley	ALB	56.8	2	1.026	0.249	1.079																											
	MI	66.8	1	1.024	0.035	1.077	63.6	1	59.5	1	61.0	1	61.0	1	55.0	2	60.0	1	63.0	1	63.0	1	60.0	1	60.0	1	60.0	1	60.0	1			
	MN	57.9	2	0.426	0.575	1.068	54.4	2	50.0	3	55.0	3	55.0	3	52.0	3	56.0	2	50.0	3	50.0	3	54.0	3	54.0	3	54.0	3	54.0	3			
	MNB	61.9	2	0.636	0.314	1.088	67.4	1	56.4	2	66.0	1	66.0	1	65.0	1	63.0	1	65.0	1	65.0	1	62.0	1	62.0	1	62.0	1	62.0	1			
	ND	65.1	1	1.355	0.509	1.074	65.2	1	54.9	2	64.0	1	64.0	1	58.0	2	66.0	1	62.0	1	62.0	1	65.0	1	65.0	1	65.0	1	65.0	1			
	NEB	56.8	2	1.026	0.249	1.079	62.5	1	57.2	1	58.0	2	58.0	2	61.0	1	65.0	1	59.0	2	59.0	2	64.0	1	64.0	1	64.0	1	64.0	1			
	OH	66.9	1	1.248	0.018	1.071	61.4	1	57.8	1	62.0	1	62.0	1	58.0	2	60.0	1	56.0	2	56.0	2	60.0	1	60.0	1	60.0	1	60.0	1			
	ONT	60.1	2	0.859	0.216	1.063	60.7	1	55.7	2	60.0	1	60.0	1	56.0	2	61.0	1	56.0	2	56.0	2	59.0	2	59.0	2	59.0	2	59.0	2			
	WI	62.7	2	0.888	0.349	1.072	62.0	1	57.8	2	61.0	1	61.0	1	55.0	3	61.0	1	58.0	2	58.0	2	56.0	3	56.0	3	56.0	3	56.0	3			
Snowden	ALB	59.2	2	3.154	0.613	1.087																											
	MI	65.5	1	1.170	0.016	1.088	64.6	1	55.7	1	62.0	1	62.0	1	61.0	1	63.0	1	54.0	3	54.0	3	60.0	1	60.0	1	60.0	1	60.0	1			
	MN	62.0	2	0.961	0.194	1.074	54.0	2	49.0	3	58.0	2	58.0	2	50.0	3	53.0	3	56.0	2	56.0	2	57.0	2	57.0	2	57.0	2	57.0	2			
	MNB	64.7	1	2.021	0.041	1.102	63.1	1	62.7	1	60.0	2	60.0	2	62.0	1	63.0	1	60.0	1	60.0	1	64.0	1	64.0	1	64.0	1	64.0	1			
	ND																																
	NEB	59.2	2	3.154	0.613	1.087	63.4	1	57.7	1	60.0	1	60.0	1	60.0	1	59.0	2	62.0	1	62.0	1	60.0	1	60.0	1	60.0	1	60.0	1			
	OH	64.8	1	1.033	0.822	1.076	63.6	1	58.1	1	63.0	1	63.0	1	58.0	2	60.0	1	59.0	2	59.0	2	57.0	2	57.0	2	57.0	2	57.0	2			
	ONT	60.5	2	1.132	0.171	1.090	62.8	1	56.6	1	57.0	2	57.0	2	58.0	2	55.0	2	56.0	2	56.0	2	62.0	1	62.0	1	62.0	1	62.0	1			
	WI	64.5	1	0.997	0.032	1.093	64.5	1	58.3	1	62.0	1	62.0	1	61.0	1	61.0	1	58.0	2	58.0	2	62.0	1	62.0	1	62.0	1	62.0	1			

Note that 8 chip tests were performed and that the notation is storage duration in months / storage temperature F / and processed directly (D) or after reconditioning (2 weeks at 65 F) i.e., 0-months/48 F/D-Direct, 3/48/D, 4/42/D, 5/48/D, 5/42/D, 7/48/D, 7/42/D, and 7/42/2(65).

SOUTHWESTERN REGIONAL POTATO VARIETY TRIAL

J.C. Miller, Jr.¹, J.W. Koym¹, D.C. Scheuring¹,
R.E. Voss², H. Phillips², D.G. Holm³, F.G.
Popiel³, and A. Thompson³

This was the third year for the Southwestern Regional Trials. As in 1999, it consisted of russet, chipping, and specialty trials. The Southwest Regional Potato Research Group includes California, Colorado, and Texas. The objective is to evaluate promising advanced selections from the Texas and Colorado breeding programs. Entries that are successful in this trial will then be entered in the various Western Regional Trials.

The 2000 trial consisted of 18 entries, including the check varieties Atlantic, Chipeta, Yukon Gold, Russet Norkotah, and Red LaSoda. The top yielding chipping entries were Atlantic and Chipeta, followed by TX1673-2W. The two highest yielding yellow flesh selections were TX1674-1W/Y and BTX1544-2W/Y. The two highest yielding russet entries were ATX9204-4Ru and AC91365-1Ru. The Colorado selection AC91014-2Ru will be graduated to the Western Regional Russet Trial. Red LaSoda was the highest yielding red entry.

Trial locations, cooperators and cultural information are shown in Southwestern Table 1. Southwestern Table 2 lists the descriptions of the clones and varieties. Total yield, total yield of U.S. No. 1, specific gravity, chipping and fry color data, and a summary of all locations are found in Southwestern Tables 3-6.

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Southwestern Regional Table 1. Locations, Cooperators, and Cultural Information

Locations	Cooperators	Irrigation	Fertilization (lb/A)	Harvest Method	Dates			
					Plant	Vine Kill	Harvest	Days to Vine kill
1. Kern Co. California (KRN)	R. Voss H. Phillips	Sprinkler	245 N, 200P, 10ZN	Machine	22-Feb	12-Jun	28-Jun	109
2. Tulelake California (TUL)	R. Voss H. Phillips	Sprinkler	160 N, 200 P	Machine	10-May	29-Aug	14-Sep	111
3. San Luis Valley Colorado (SLV)	D. Holm, F. Popiel S. Thompson	Pivot	160N, 150P, 60K	Machine	17-May	31-Aug	27-Sep	106
4. Springlake Texas (SPR)	C. Miller, J. Koym D. Scheuring	Pivot	160N, 33P, 63K	Machine/hand	11-Mar	18-Jul	13-Aug	127

Southwestern Regional Table 2. Description of Clones - 2000

Clone / Variety	Parents		Flower Color	Vine Size	Maturity	Tuber Shape	Skin Color	Entered	
	Female	Male						By	Use
1. Atlantic	Wauseon	B5141-6	Red-Purple	Medium	Medium	Oval	Scaley-Buff	Check	Chip
2. Chipeta	WNC612-13	Wischip	Red	Large	Med-Late	Round	Buff	Check	Chip
3. CO92059-8W	BC0994-2	AC85438-4	White	Medium	Med-Late	Oval	White	CO	Chip
4. TX1673-2W	A8603-13	A8495-1	White	Medium	Medium	Oblong	White	TX	Chip
5. Yukon Gold	Norgleam	W5279-4	White	Medium	Early	Oval	White	Check	Specialty
6. BTX1544-2W/Y	BO811-13	Yukon Gold	White	Medium	Medium	Oblong	White	TX	Specialty
7. BTX1750-W/Y	K7-6	BO800-12	White	Medium	Medium	Oblong	White	TX	Specialty
8. TX1674-1W/Y	Russet Nugget	Delta Gold	White	Medium	Medium	Oblong	White	TX	Specialty
9. Russet Norkotah	ND9687-5Ru	ND9526-4Ru	White	Small	Early	Long	Russet	Check	Fresh
10. AC90636-3Ru	COO8426-201	Gem Russet	White	Medium	Medium	Oblong	Russet	CO	Fresh
11. AC91014-2Ru	A84180-8	A8519-4	White	Medium	Medium	Oblong	Russet	CO	Dual
12. AC91365-1Ru	A85348-10	A84118-3	White	Medium	Med-Late	Oblong	Russet	CO	Fresh
13. A TX9202-1Ru	A8343-12	A8495-1	White	Medium	Medium	Oblong	Russet	TX	Fresh
14. A TX9204-4Ru	A8343-12	A8519-4	White	Medium	Medium	Oblong	Russet	TX	Fresh
15. A TX92230-4Ru	A8603-13	A8495-1	White	Medium	Medium	Oblong	Russet	TX	Fresh
16. A TX9312-1Ru	A8495-1	A8872-6	White	Medium	Medium	Oblong	Russet	TX	Fresh
17. Red LaSoda	Triumph	Katahdin	Red-Purple	Medium	Medium	Oval	Red	Check	Fresh
18. NDC5281-2R	ND3196-1R	ND2224-5R	Red-Purple	Large	Med-Early	Oval	Red	CO	Fresh

Southwestern Regional Table 3. Total Yield, Merit Score, and Rank Within Type (Chipping, Yellow Flesh, Russet, Red) of Clones, 2000

Clone	Total Yield, Merit Score (MS) ¹ , and Rank									
	California				Colorado			Texas		
	KRN		TUL		SLV		SPR	Mean		
	Cwt/A	Rank	Cwt/A	MS Rank	Cwt/A	MS Rank				
1. Atlantic	524	1	640	4.0 1	462	4.0 2	311	3.1 1	484	3.7 1
2. Chipeta	499	2			497	5.0 1	297	2.8 2	431	3.9 2
3. CO92059-8W	342	3	574	3.3 3	391	2.0 4	239	2.2 4	387	2.5 4
4. TX1673-2W	303	4	623	3.5 2	407	3.0 3	290	2.6 3	406	3.0 3
5. Yukon Gold	334	1	406	3.0 3	418	3.0 2	368	3.9 1	381	3.3 1
6. BTX1544-2W/Y	251	4	584	2.3 1	450	4.0 1	254	3.1 3	385	3.1 2
7. BTX1750-W/Y	307	2	339	4.0 4	303	2.0 4	179	3.1 4	282	3.0 4
8. TX1674-1W/Y	279	3	466	3.0 2	400	3.0 3	285	3.5 2	358	3.2 3
9. Russet Norkotah	385	1	354	4.0 8	451	4.0 3	317	3.1 1	377	3.7 2-3
10. AC90636-3Ru	339	3	481	3.3 3	394	4.0 8	216	2.8 5	358	3.3 5
11. AC91014-2Ru	285	4	439	4.0 6	406	4.0 6	194	2.7 8	331	3.6 7
12. AC91365-1Ru	363	2	508	2.8 2	475	1.0 2	295	3.0 3	410	2.3 1
13. ATX9202-1Ru	252	8	471	3.7 4	420	2.0 5	234	2.8 4	344	2.8 6
14. ATX9204-4Ru	276	5	637	3.0 1	520	5.0 1	209	2.9 6	411	3.6 2-3
15. ATX92230-4Ru	262	6	463	3.5 5	423	3.0 4	307	3.2 2	364	3.2 4
16. ATX9312-1Ru	259	7	421	3.5 7	398	2.0 7	197	3.2 7	319	2.9 8
17. Red LaSoda	415	1	719	2.3 1	605	1.0 1	304	2.6 2	511	2.0 1
18. NDC5281-2R	289	2	562	4.0 2	321	4.0 2	304	3.6 1	369	3.9 2
Mean	331		511	3.4	430	3.1	267	3.0	384	3.2

¹ 1= very poor, 5=excellent

Southwestern Regional Table 4. Specific Gravity (1.0XX) of Clones, 2000

Clone	Specific Gravity (1.0 XX)				
	California		Colorado		Texas ¹
	KRN	TUL	SLV	SPR	
1. Atlantic	87	88	94		90
2. Chipeta	81		94		87
3. CO92059-8W	73	82	93		83
4. TX1673-2W	76	75	82		78
5. Yukon Gold	87	81	86		85
6. BTX1544-2W/Y	84	80	84		83
7. BTX1750-W/Y	85	76	76		79
8. TX1674-1W/Y	79	83	93		85
9. Russet Norkotah	83	76	78		79
10. AC90636-3Ru	83	75	81		80
11. AC91014-2Ru	90	83	89		87
12. AC91365-1Ru	88	85	91		88
13. ATX9202-1Ru	87	83	90		86
14. ATX9204-4Ru	80	77	80		79
15. ATX92230-4Ru	89	81	88		86
16. ATX9312-1Ru	87	84	85		85
17. Red LaSoda	80	68	80		76
18. NDC5281-2R	89	76	86		84
Mean	84	79	86		83

¹ Not reported due to gravity mechanical problems

Southwestern Regional Table 5. Chipping and Fry Data for Clones, 2000

Clone	Hunter L Value ¹		Chip Color ²		Chip Color ³			Fry Data ⁸	
	Texas	California	Texas		Colorado				
	SPR	KRN	SPR		SLV ⁴	SLV ⁵	SLV ⁶	SLV ⁷	SLV ⁹ SLV ¹⁰
1. Atlantic	66.1	69.5	81.6		4.0	4.0	4.0	3.0	
2. Chipeta	58.1	67.2	58.1		5.0	5.0	5.0	2.5	
3. CO92059-8W	64.9	66.7	80.5		4.5	3.5	4.5	3.5	
4. TX1673-2W	59.9		44.4						2 2
5. Yukon Gold									2 2
6. BTX1544-2W/Y									1 2
7. BTX1750-W/Y									1 1
8. TX1674-1W/Y									2 2
9. Russet Norkotah									2 2
10. AC90636-3Ru									3 4
11. AC91014-2Ru									2 2
12. AC91365-1Ru									3 3
13. ATX9202-1Ru									3 3
14. ATX9204-4Ru									4 4
15. ATX92230-4Ru									3 3
16. ATX9312-1Ru									4 4
17. Red LaSoda									3 3
18. NDC5281-2R									2 2

¹ Dark to Light. Samples lower than 62 'L' are unacceptable

² Formula for color = IF(E5=0, "", E5+22*(COS((H5-1)*0.785375)))

³ 1=light, 5=dark

⁴ 6 weeks at 40° F

⁵ 6 weeks at 40° F + 3 weeks at 60° F

⁶ 6 weeks at 50° F

⁷ 6 weeks at 40° F + 3 weeks at 60° F

⁸ 0=light, 4=dark

⁹ at harvest

¹⁰ 9 weeks at 45° F

Southwestern Regional Table 6. 2000 Summary

Clone	Plant Characteristics				Yield				Tuber Characteristics				Merit Score			
	%	Stems/ Hill	Vine ¹		Vine ² Mat.	Total		%	%	%	%	Specific Gravity		Tuber		Skin Color
			Stand	Size		Yield	#1s							Shape	Weight	
1. Atlantic	95	2.0	3.3	3.2	484	86	17	10	4	1.085	Oval	4.8	Scaley-Buff	3.7		
2. Chipeta	97	2.2	4.2	3.7	431	88	24	6	4	1.084	Round	5.9	Buff	3.9		
3. CO92059-8W	95	2.0	3.1	3.3	387	66	2	22	3	1.076	Oval	3.0	White	2.5		
4. TX1673-2W	93	2.0	3.6	3.3	406	82	18	11	2	1.071	Oblong	4.0	White	3.0		
5. Yukon Gold	94	1.8	2.9	1.9	381	88	26	6	3	1.074	Oval	5.2	White	3.3		
6. BTX1544-2W/Y	95	1.6	3.4	2.3	385	87	18	7	3	1.070	Oblong	5.6	White	3.1		
7. BTX1750-W/Y	97	2.2	1.8	1.3	282	81	3	13	1	1.068	Oblong	3.9	White	3.0		
8. TX1674-1W/Y	95	2.1	3.1	3.0	358	87	17	8	3	1.075	Oblong	4.2	White	3.2		
9. Russet Norkotah	92	3.1	2.4	1.7	377	87	23	6	4	1.075	Long	5.6	Russet	3.7		
10. AC90636-3Ru	96	1.9	2.9	3.0	358	87	17	8	4	1.076	Oblong	4.2	Russet	3.3		
11. AC91014-2Ru	93	2.7	2.8	2.6	331	84	12	9	5	1.082	Oblong	4.8	Russet	3.6		
12. AC91365-1Ru	96	2.3	3.4	3.5	410	86	19	7	5	1.085	Oblong	5.0	Russet	2.3		
13. ATX9202-1Ru	88	2.0	3.7	3.8	344	77	12	10	8	1.082	Oblong	4.2	Russet	2.8		
14. ATX9204-4Ru	94	1.9	4.1	3.8	411	86	23	6	5	1.080	Oblong	5.1	Russet	3.6		
15. ATX92230-4Ru	93	2.2	3.8	3.1	364	86	24	6	7	1.081	Oblong	7.0	Russet	3.2		
16. ATX9312-1Ru	93	2.3	3.8	3.5	319	71	21	6	17	1.082	Oblong	6.2	Russet	2.9		
17. Red LaSoda	94	1.1	3.5	2.9	511	81	29	9	8	1.069	Oval	4.7	Red	2.0		
18. NDC5281-2R	89	2.2	3.2	2.1	369	76	5	13	2	1.077	Oval	3.9	Red	3.9		
Mean	94	2.1	3.3	2.9	384	83	17	9	5	1.077		4.9		3.2		

¹ 1=very small, 2=small, 3=medium, 4=large, 5=very large² 1=very early, 2=early, 3=medium, 4=late, 5=very late³ CA reported >12 oz⁴ 1=very poor, 5=excellent

Western Regional Potato Variety Trial

R. G. Novy, D.L. Corsini, and B. Schneider
USDA-ARS, P.O Box 870
Aberdeen, ID 83210
and Cooperators:

California: R. Voss, H. Phillips, H. Carlson, D. Kirby, and J. Nunez; **Colorado:** D. Holm; F. Popiel; **Idaho:** S. Love, T. Salaiz, and P. Bain; **New Mexico:** M. O'Neill and C. Owen; **Oregon:** A. Mosley, D. Hane, K. Rykbost, B. Charlton, C. Shock, E. Eldredge, and S. James; **Texas:** J.C. Miller, Jr., J. Koym, and D. Schuering; **Washington:** R. Thornton, N. Fuller, J. Rupp, G. Newberry, and C. Brown.

The 2000 Western Regional Potato Variety Trial consisted of 15 trials conducted in seven states. Table 1 lists the trial locations, respective cooperators, and pertinent cultural information at each site. Fourteen experimental selections and four check cultivars were trialed. Entries' parentage, their submitting organizations, and descriptions of their tuber and vine characteristics are given in Table 2.

Total and U.S. No. 1 Yield (Tables 3 & 4):

Early Harvest: In the early harvest trial, A90586-11 had the highest total yield across all sites (468 cwt/A), followed by A8893-1 (445 cwt/A) and TXNS102 (420 cwt/A). A9045-7 with 85% U.S. No. 1's was the highest-yielding entry for U.S. No. 1 yield (357 cwt/A), followed closely by A8893-1 (352 cwt/A) and A90586-11 (350 cwt/A).

Late Harvest: As in the early harvest trial, A90586-11 was the top yielder at 647 cwt/A. A8792-1 (609 cwt/A) and A9045-7 (602 cwt/A) rounded out the top three entries for total yield. A90586-11 was number one for U.S. No. 1 yield at 496 cwt/A, followed by A9045-7 (494 cwt/A) and ATX9202-3RU (480 cwt/A).

Tuber Size Distribution (Tables 5 & 6):

Early Harvest: Across all sites, A9045-7 had the greatest yield of oversize tubers at 124 cwt/A. A8893-1 (105 cwt/A) and A8792-1 (102 cwt/A) were ranked number 2 and 3.

Late Harvest: A9045-7 was number one for

yield of tubers > 10-12 ounces at 217 cwt/A. A8792-1 and A90586-11 were second and third with yields of 212 and 201 cwt/A.

Entries with a large percentage of undersize tubers (<4 ounces) across both the early and late trials were AC89536-5 and Russet Burbank.

Specific Gravities (Table 7): Across the early and late harvest trials, A90586-11, A8792-1, and A9045-7 had consistently high gravities. Russet Norkotah and its derivatives (TXNS102 and 296) had the lowest gravities.

Tuber Size and Shape (Table 8): Shepody (7.3 ounces), A8792-1 (7.1 ounces), and A9045-7 (7.1 ounces) had the largest tuber size averaged across all early harvest sites. A9045-7, A8792-1, and Ranger Russet had the largest tuber sizes in the late harvest trials at 10.4, 9.8, and 9.7 ounces, respectively.

Entries with consistently long tubers across early and late harvest trials were TXNS296, Ranger Russet, and Russet Burbank.

Summary of External and Internal Defects

(Tables 9 & 10): A mean summary of external and internal defects was compiled for each entry, along with specific problem sites where extreme values were observed. At the early harvest sites, second growth was noted as a problem for TXNS296 and Russet Burbank at Eltopia, WA. Scab was also noted as excessive at Eltopia for Shepody, A90586-11, and PORTGS124-1.

A8792-1, Russet Burbank, AC87138-4, and A9045-7 were noted as having growth cracks at several of the late harvest sites. Second growth was severe for Russet Burbank; Ranger Russet and A90586-11 also were noted for severe second growth at the Kimberly, ID site. Shatter bruise was excessive for A8893-1 and A9014-2 in the Hermiston, OR late harvest trial.

Russet Burbank had a high incidence of hollow heart at both the Eltopia (early) and Klamath Falls (late) sites. AC87079-3 and AC87138-4 were noted as having a high incidence of hollow heart at Aberdeen, ID. Internal brown spot appeared to be a problem for A8893-1 at the early harvest trial in Kern County, CA. A90142 and ATX9202-3RU also had a high incidence of internal brown spot at the Tulelake, CA site.

PORTGS124-1 and 129-1 had the highest incidence of net necrosis / vascular discoloration in the early harvest trial. Blackspot bruise was consistently high for Russet Burbank, AC87138-4, and ATX9202-3RU across the early and late harvest trial.

French Fry Color and Quality (Table 11):

A9014-2, A8792-1, A8893-1, AC87138-4, and ATX9202-3RU were exceptional for fry color from the field, as well as following storage at 45° F. However, AC87138-4 had a relatively high percentage (27%) of sugar ends. A9014-2 also was exceptional for fry color from 40°.

Disease Evaluation and Metribuzin Reaction

(Table 12): Trials for evaluating disease resistance of entries were conducted in Aberdeen, ID, and Hermiston and Corvallis, OR. A90586-11 was notable for resistance to verticillium wilt/early dying, early blight, and late blight (foliage and tuber). AC87079-3 and AC87138-4 also appeared to have resistance to both verticillium wilt/early dying and early blight. Common scab infection was high for Ranger Russet, Shepody, A90586-11, and AC87079-3. A8792-1 had a high incidence of net necrosis at both the Aberdeen, ID, and Hermiston, OR sites. Compared to other entries, A8893-1 had a higher susceptibility to early blight infection of the tuber. Russet Burbank, Ranger Russet, and A9045-7 were relatively susceptible to Fusarium dry rot; Russet Burbank also was susceptible to Erwinia soft rot as well. Among experimental entries, A9014-2, A90586-11, AC87079-3, AC89536-5, and ATX9202-3RU were identified as having some susceptibility to Metribuzin.

Chemical Analyses of Tubers (Table 13):

Data is presented on tuber solids, sugars, proteins, vitamin C, and glycoalkaloids. A relatively high protein content was found in A8893-1 and A9014-2. AC87079-3 and AC89536-5 were identified as having a high vitamin C content. ATX9202-3RU was noted as having a high glycoalkaloid content (34 mg / 100 g FWB).

Merit Scores (Table 14): Entries were evaluated for their processing and fresh market merit. A9014-2, A8792-1, and A9045-7 were rated as the top three entries for processing merit. TXNS102, TXNS296, A9014-2, and

AC89536-5 were recognized as having high merit for the fresh market.

Summary of Entries' Performances in 2000
(Table 15):

Yields, tuber size and shape, specific gravity, fry color from 45° F, merit scores, noted problems, and disposition are summarized for each entry.

Three Year Summary of Graduating Entries
(Table 16):

A8792-1 completed the maximum three years of testing in the Western Regional Potato Variety Trial. A summary of its performance relative to Russet Burbank in each of the three years is given, as well as a 3- year average.

WESTERN REGIONAL TABLE 1. LOCATIONS, COOPERATORS, AND CULTURAL INFORMATION

No.	Locations	Cooperators	Trial	Irrigation	Fertilizer N-P-K-S(lb/A)	Planting Date	Harvest Date	Days to Vine Kill	Days to Harvest	Herbicides	Insecticides	Fungicides
1	Kern Co. California (KRN)	R. Voss, H. Phillips, J. Nunez	Early	Sprink.	245	22-Feb	28-Jun		127	Eptam, Prowl		Bravo W.S.
2	Tulelake California (TUL)	R. Voss, H. Phillips, D. Kirby, H. Carlson	Late	Sprink.	160-20	10-May	26-Sep	124 Diquat	139	Lexone, Matrix	Pounce	Curzate, Dithane Bravo, Kocide
3	San Luis Valley Colorado (SLV)	D. Holm, F. Popiel	Late	Pivot	160-150-60	17-May	27-Sep	106 Sulfuric Acid	133	Dual Magnum + Sencor, Poast	Fulfill, Asana XL Thiodan 3 EC	Dithane F-45, Quadris Bravo (Ultrax, Weather Stik) Super Tin 80WP
4	Aberdeen Idaho (AB)	S. Love, R. Novy, D. Corsini	Late	Sprink.	240-150-50+	27-Apr	19-Sep	134 Diquat	145	Sencor DF + Matrix, Eptam 7E	Admire, Fulfill	Bravo WeatherStik
5	Kimberly Idaho (KIM)	S. Love, R. Novy, D. Corsini	Late	Sprink.	221-26	25-Apr	28-Sep	139 Mech.	156	Eptam Lexon + Matrix	Mocap 10G Success Sevin 4F	Bravo Ultrex
6	Farmington New Mexico (FRM)	M. O'Neil, C. Owen	Late	Sprink.	224-104-120	27-Apr	n.a.	n.a.	n.a.	Turbo		
7	Hermiston Oregon (HRM)	D. Hane, A. Mosley	Early Late	Pivot Pivot	290-80-200-40 282-178-278-132	28-Mar 13-Apr	7-Aug 25-Sep	118 151	132 165	Matrix, Eptam Prowl, Vapam	Mocap, Admire, Monitor Temik, Asana, Comite Phorate, Lannate	Bravo, Dithane Botran, Quadris Curzate
8	Klamath Falls Oregon (KLM)	K. Rykbost, B. Charlton	Late	Sprink.	160-80-80-140	17-May	29-Sep	121	135	Dual, Prowl	DiSyston Monitor	Tops MZ, Bravo Dithane, NuCop Ridomil-MZ
9	Malheur Oregon (MAL)	C. Shock, A. Mosley, E. Eldredge	Early Late	Furrow Furrow	110 110	20-Apr 1-May	23-Aug 5-Sep	123 120 Mech	125 127	Roundup Ultra Prowl + Dual	Thimet	Telone II, Bravo Dithane Sulfur Powder
10	Dalhart Texas (DAL)	J. C. Miller Jr., J. Koym, D. Schuering	Early	Pivot	305	18-May	10-Sep	102	115	Prowl, Sencor Poast, Matrix	Admire, Baythroid Asana, Provado	Maxim, Quadris Supertin, Ridomil
11	Springlake Texas (SPR)	J. C. Miller Jr., J. Koym, D. Schuering	Early	Pivot	160-33-63	11-Mar	13-Aug	129	155	Prowl, Sencor Roundup	Admire	Tops MZ
12	Eltopia (ELT) Warden (WRD) Washington	R. Thornton, N. Fuller, J. Rupp, G. Newberry	Early Late	Pivot Pivot	268-120-200 393-355-370	16-Mar 17-Apr	1-Aug 25-Sep	150 Diquat	138 161	Sencor DF Sencor, Prowl	Asana Temik, 2 Monitor Comite	3 Manzate 75DF Ridomil, Roval Bravo, Super Tin

Bold indicates use in both early and late trial.

WESTERN REGIONAL TABLE 2. CLONE, PARENTAGE, FLOWER COLOR, ENTRY SUBMISSION, USE, TRIAL, YEARS IN TRIAL, SEED SOURCE, STAND, TUBER AND VINE CHARACTERISTICS

Tuber and Vine Descriptions												
No. Clone	Parents	Flower Color ¹	Entered by	Use	Year in			Stand ²	Tuber Shape	Tuber Skin	Vine Size	Vine Maturity
					Trial	E/L	Source					
1	RUSSET BURBANK	W	CK	Dual	E/L	-	OR	97	Long	Med Russet	Med-large	Medium
2	RANGER RUSSET	RP	CK	Dual	E/L	-	OR	96	Long	Med Russet	Med-large	Medium
3	RUSSET NORKOTAH	W	CK	Fresh	E/L	-	OR	95	Long	Med-Hvy Rus	Small	Early
4	SHEPODY	RP	CK	Proc	E	-	OR	98	Oblong	White	Med-large	Med-early
5	A8792-1	W	ID	Dual	E/L	3	ID	96	Obl-Lng	Med-Hvy Rus	Large	Medium
6	A8893-1	RP	ID	Dual	E/L	2	OR	95	Obl-Lng	Med Russet	Medium	Med-early
7	A9014-2	W	ID	Dual	E/L	2	OR	91	Obl-Lng	Med-Hvy Rus	Medium	Med-early
8	A9045-7	RP	ID	Dual	E/L	1	OR	95	Long	Med Russet	Med-large	Medium
9	A90586-11	W	ID	Proc	L	1	OR	97	Obl-Lng	Light Russet	Med-large	Med-early
10	AC87079-3	W	CO	Fresh	E/L	2	CO	96	Obl-Lng	Med-Hvy Rus	Med-large	Medium
11	AC87138-4	W	CO	Dual	E/L	2	CO	96	Long	Med-Hvy Rus	Med-large	Med-early
12	AC89536-5	RP	CO	Fresh	E/L	1	CO	96	Long	Med-Hvy Rus	Med-large	Med-early
13	ATX9202-3RU	W	TX	Dual	E/L	1	CO	96	Obl-Lng	Med Russet	Med-large	Medium
14	PORTGNP3-138	W	OR	Fresh	E	2	OR	100	Obl-Lng	Med-Hvy Rus	Medium	Early
15	PORTGS124-1	RP	OR	Proc	E	2	OR	98	Obl-Lng	White	Medium	Early
16	PORTGS129-1	RP	OR	Proc	E	2	OR	100	Obl-Lng	White	Very large	Early
17	TXNS102	W	TX	Fresh	E/L	2	TX	98	Long	Med Russet	Medium	Early
18	TXNS296	W	TX	Fresh	E/L	2	TX	96	Long	Med-Hvy Rus	Med-large	Early

¹ P=Purple, R=Red, W=White.

² Means of all trial locations.

WESTERN REGIONAL TABLE 3. TOTAL YIELD (CWT/A) - EARLY AND LATE HARVEST

No. Clone	Total Yield - Early Harvest (CWT/A)										Total Yield - Late Harvest (CWT/A)									
	CA					OR					TX					WA				
	KRN	HRM	MAL	DAL	SPR	ELT	Mean/Rank	Entry	Dunc	CA	CO	ID	NM	FRM	HRM	KLM	MAL	WRD	Mean/Rank	Dunc
1 R. BURBANK	319	512	420	203	247	546	375	13	cdef	TUL	SLV ¹	AB	KIM	FRM	HRM	KLM	MAL	WRD	Mean/Rank	Dunc
	319	512	420	203	247	546	375	13	cdef	605	430	487	344	600	671	564	466	803	568	5 bcd
2 RANGER R.	352	584	341	288	262	594	404	11	bcde	598	421	492	489	559	706	569	335	739	561	6 bcd
3 R. NORKOTAH	385	333	363	226	308	443	343	17	f	354	409	299	232	398	441	459	327	506	377	14 g
4 SHEPODY	-	486	292	286	234	520	364	14		-	-	-	-	-	-	-	-	-	-	-
5 A8792-1	375	556	391	177	389	537	404	10	bcde	749	-	629	576	568	646	547	343	817	609	2 ab
6 A8893-1	337	552	536	292	367	586	445	4	ab	610	-	517	464	422	618	586	350	709	534	8 de
7 A9014-2	299	488	326	237	269	505	354	16	ef	486	-	412	327	412	687	506	300	636	471	12 ef
8 A9045-7	326	546	433	311	323	552	415	7	abcd	614	-	606	530	601	526	614	459	863	602	3 abc
9 A90586-11	380	704	402	312	367	642	468	1	a	631	-	583	530	661	820	735	319	899	647	1 a
10 AC87079-3	-	-	-	163	127	-	-	-		517	481	488	345	541	423	447	274	673	463	13 f
11 AC87138-4	308	495	289	196	342	531	360	15	def	654	446	550	276	367	667	510	384	639	506	9 def
12 AC89536-5	330	548	433	334	316	532	416	6	abcd	607	439	470	473	603	656	529	271	702	539	7 cd
13 ATX9202-3RU	344	533	436	318	199	460	382	12	cdef	679	466	517	428	532	642	622	381	744	568	4 bcd
14 PORTGNP3-138	-	457	322	-	-	434	404	9		-	-	-	-	-	-	-	-	-	-	-
15 PORTGS124-1	-	497	301	-	-	583	460	2		-	-	-	-	-	-	-	-	-	-	-
16 PORTGS129-1	-	477	330	-	-	558	455	3		-	-	-	-	-	-	-	-	-	-	-
17 TXNS102	423	502	378	310	373	533	420	5	abc	579	421	382	386	486	544	523	-	-	483	10
18 TXNS296	320	525	442	269	371	553	413	8	abcde	611	453	400	349	461	527	538	-	-	481	11
Location Means	346	517	378	262	300	536	405			592	441	483	411	515	612	554	351	727	529	

Numbers followed by the same letter are not significantly different at the 5% level using Duncan's multiple range test. Entries with no letters were not included in analyses due to incomplete representation at all sites.

¹Excluded from means due to missing entries.

WESTERN REGIONAL TABLE 4. YIELD OF U.S. #1'S (CWT/A & %) - EARLY AND LATE HARVEST

U.S. No. 1's - Early Harvest

(CWT/A)

No. Clone	CA	KRN	HRM	MAL	OR	TX	DAI	SPR	ELT	WA	Entry	Dunc
1 R BURBANK	266	313	204	88	79	316	209	17	d			
	83	61	48	43	32	56	54	17				
2 RANGER R.	327	439	199	213	143	508	305	10	abc			
	93	75	58	74	55	86	73	11				
3 R. NORKOTAH	354	259	292	166	260	377	285	12	bc			
	92	78	81	73	85	85	82	3				
4 SHEPODY	-	324	192	204	115	398	247	16				
	-	67	66	72	49	76	66	14				
5 A8792-1	361	407	274	134	258	461	316	7	ab			
	96	73	70	76	66	86	78	6				
6 A8893-1	308	415	358	235	269	524	352	2	a			
	91	75	65	81	73	90	79	5				
7 A9014-2	268	433	228	203	237	424	299	11	abc			
	90	89	71	86	88	84	85	2				
8 A9045-7	304	488	308	232	297	512	357	1	a			
	93	90	71	75	92	93	85	1				
9 A90586-11	357	516	292	204	237	492	350	3	a			
	94	73	72	65	65	77	74	10				
10 AC87079-3	-	-	-	134	89	-	-	-				
	-	-	-	82	70	-	-	-				
11 AC87138-4	278	372	178	136	206	427	266	14	bc			
	89	75	62	70	60	81	73	12				
12 AC89536-5	316	442	321	198	254	395	321	5	ab			
	96	81	74	59	80	74	77	7				
13 ATX9202-3RU	310	443	319	251	160	402	314	8	ab			
	90	83	74	79	81	87	82	4				
14 PORTGNP3-138	-	316	155	-	-	299	257	15				
	-	69	47	-	-	69	62	15				
15 PORTGS124-1	-	403	148	-	-	470	341	4				
	-	81	48	-	-	81	70	13				
16 PORTGS129-1	-	314	142	-	-	392	283	13				
	-	66	40	-	-	70	59	16				
17 TXNS102	402	344	253	231	276	401	318	6	ab			
	95	69	66	74	74	75	76	8				
18 TXNS296	291	393	300	170	280	435	311	9	ab			
	91	75	67	63	75	79	75	9				
Location Means	319	389	245	187	211	425	302					
	92	75	64	71	70	79	74					

U.S. No. 1's - Late Harvest

(CWT/A)

No. Clone	CA	CO	SLV ¹	AB	ID	KIM	FRM ²	HRM	KLM	OR	MAL	WRD	WA	Entry	Dunc
TUL	436	303	274	28	505	427	378	187	349	330	13	de			
	73	72	56	26	84	64	67	41	43	57	14				
	452	365	366	289	535	547	381	207	583	420	7	abc			
	75	87	74	59	96	77	67	63	79	74	12				
	303	332	242	174	357	306	402	260	419	308	14	e			
	86	81	81	75	90	69	88	79	83	81	3				
	-	-	-	-	-	-	-	-	-	-	-	-			
	590	-	528	419	548	414	334	228	636	462	4	ab			
	78	-	84	73	96	64	61	67	78	75	10				
	515	-	441	341	397	456	496	241	557	431	5	abc			
	84	-	85	73	94	74	85	69	79	80	5				
	409	-	354	228	394	622	437	211	543	400	8	bcd			
	84	-	86	70	96	91	86	71	85	84	1				
	495	-	526	413	557	387	417	368	787	494	2	a			
	80	-	87	78	93	74	68	80	91	81	4				
	553	-	398	283	633	710	533	197	664	496	1	a			
	88	-	68	53	96	87	73	63	74	75	11				
	422	418	399	229	522	227	373	185	558	364	12	cde			
	82	87	82	66	97	54	83	69	83	77	9				
	497	383	417	144	333	412	392	265	463	365	11	cde			
	76	86	76	52	91	62	77	69	72	72	13				
	507	359	387	291	561	516	435	195	532	428	6	abc			
	82	82	82	62	93	79	82	71	76	78	7				
	603	389	463	289	516	559	478	265	667	480	3	ab			
	89	84	90	68	97	87	77	69	90	83	2				
	-	-	-	-	-	-	-	-	-	-	-	-			
	-	-	-	-	-	-	-	-	-	-	-	-			
	-	-	-	-	-	-	-	-	-	-	-	-			
	-	-	-	-	-	-	-	-	-	-	-	-			
	492	384	283	235	447	369	447	-	-	379	10				
	85	91	74	61	92	68	85	-	-	78	8				
	468	405	342	245	413	358	476	-	-	384	9				
	76	89	86	70	90	68	88	-	-	80	6				
	482	371	387	282	450	451	427	234	563	410					
	81	84	79	63	93	73	78	68	78	77					

Numbers followed by the same letter are not significantly different at the 5% level using Duncan's multiple range test. Entries with no letters were not included in analyses due to incomplete representation at all sites.

¹Excluded from means due to missing entries.

²FRM graded by size: > 1 7/8".

WESTERN REGIONAL TABLE 5. YIELD > 10/12 OZ (CWT/A & %) - EARLY AND LATE HARVEST ¹

U.S. No. 1's > 10/12 OZ - Early Harvest

(CWT/A)

No. Clone	CA										WA				Entry	
	KRN	HRM	MAL	TX	DAL	SPR	ELT	Mean/Rank	Dunc		TX	ELT	Mean/Rank	Dunc		
1 R. BURBANK	39	23	34	11	8	3	16	22	17	g						
2 RANGER R.	12	4	8	5	3	3	3	6	17							
	72	142	63	45	39	90	90	75	9	bcdef						
	20	24	19	16	15	15	15	18	9							
3 R. NORKOTAH	67	31	87	24	90	47	58	14	efg							
	17	9	24	11	29	11	17	10								
4 SHEPODY	-	200	80	32	25	153	98	6								
	-	41	27	11	11	11	29	24	4							
5 A8792-1	74	202	94	23	98	122	102	4	abc							
	20	36	24	13	25	23	24	5								
6 A8893-1	62	108	182	67	66	144	105	3	ab							
	18	20	34	23	18	25	23	6								
7 A9014-2	49	159	90	82	66	103	91	7	abcde							
	16	33	27	35	25	20	26	3								
8 A9045-7	66	214	152	37	138	136	124	2	a							
	20	39	35	12	43	25	29	2								
9 A90586-11	70	112	68	19	32	122	71	10	bcdef							
	19	16	17	6	9	19	14	14								
10 AC87079-3	-	-	-	29	13	-	-	-	-							
	-	-	-	18	10	-	-	-	-							
11 AC87138-4	17	127	61	26	47	95	62	13	cdef							
	6	26	21	13	14	18	16	11								
12 AC89536-5	50	68	63	0	51	32	44	15	fg							
	15	12	14	0	16	6	11	15								
13 ATX9202-3RU	15	153	100	41	4	92	67	11	bcdef							
	4	29	23	13	2	20	15	13								
14 PORTGNP3-138	-	31	34	-	-	17	27	16								
	-	7	10	-	-	4	7	16								
15 PORTGS124-1	-	291	63	-	-	225	193	1								
	-	59	21	-	-	39	39	1								
16 PORTGS129-1	-	142	39	-	-	120	100	5								
	-	30	12	-	-	22	21	7								
17 TXNS102	73	53	81	41	68	62	63	12	cdef							
	17	11	22	13	18	12	15	12								
18 TXNS296	41	71	163	7	130	114	88	8	abcde							
	13	14	37	2	35	21	20	8								
Location Means	53	125	85	32	59	99	82									
	15	24	22	13	18	18	19									

Numbers followed by the same letter are not significantly different at the 5% level using Duncan's multiple range test. Entries with no letters were not included in analyses due to incomplete representation at all sites.

¹All sites reported oversize as > 12 oz, with the exception of TX, CO, and Kern, CA sites which reported oversize as > 10 oz. FRM graded by size with oversize being > 3".

²Excluded from means due to missing entries.

U.S. No. 1's > 10/12 OZ - Late Harvest

(CWT/A)

CA	ID										OR				Entry	
	TUL	SLV ²	AB	KIM	FRM	HRM	KLM	MAL	WRD	Mean/Rank	Dunc					
75	88	117	28	9	170	76	23	122	78	13	d					
12	20	24	8	1	25	13	6	15	13	14						
212	180	161	158	27	322	139	55	357	179	6	abc					
35	43	33	32	5	46	24	17	48	30	5						
77	102	44	48	18	87	118	56	96	68	14	d					
22	25	15	21	5	20	26	17	19	18	13						
-	-	-	-	-	-	-	-	-	-	-						
-	-	-	-	-	-	-	-	-	-	-						
326	-	270	252	101	272	64	49	366	212	2	a					
44	-	43	44	18	42	12	14	45	33	3						
181	-	138	122	20	237	153	121	261	154	7	abc					
30	-	27	26	5	38	26	35	37	28	8						
159	-	146	112	148	406	205	111	302	199	4	ab					
33	-	35	34	36	59	41	37	47	40	1						
132	-	334	246	49	155	205	98	519	217	1	a					
22	-	55	46	8	29	33	21	60	34	2						
157	-	188	173	69	465	175	1	383	201	3	ab					
25	-	32	33	10	57	24	0	43	28	7						
127	163	218	72	49	69	79	76	288	122	10	cd					
24	34	45	21	9	16	18	28	43	26	9						
138	144	195	72	48	202	103	50	263	134	9	bcd					
21	32	35	26	13	30	20	13	41	25	10						
124	107	139	87	40	188	83	31	215	113	12	cd					
20	24	30	18	7	29	16	11	31	20	12						
217	112	291	138	79	317	143	44	314	193	5	ab					
32	24	56	32	15	49	23	12	42	33	4						
-	-	-	-	-	-	-	-	-	-	-						
-	-	-	-	-	-	-	-	-	-	-						
-	-	-	-	-	-	-	-	-	-	-						
-	-	-	-	-	-	-	-	-	-	-						
174	250	68	93	51	121	183	-	-	115	11						
30	59	18	24	11	22	35	-	-	23	11						
269	248	67	90	37	167	222	-	-	142	8						
44	55	17	26	8	32	41	-	-	28	6						
163	155	170	121	53	227	139	60	231	152							
28	35	33	28	11	35	25	18	39	27							

WESTERN REGIONAL TABLE 6. YIELD < 4 OZ (CWT/A & %) - EARLY AND LATE HARVEST

Yield < 4 OZ - Early Harvest
(CWT/A)

No. Clone	CA				OR		TX			WA		Entry		Dunc				
	KRN	HRM	MAL	DAL	SPR	ELT	Mean/Rank	Mean/Rank										
1 R. BUREANK	23	88	18	34	54	111	54	4	ab									
	7	17	4	17	22	20	15	3										
2 RANGER R.	13	36	10	57	26	47	32	11	cd									
	4	6	3	20	10	8	8	13										
3 R. NORKOTAH	19	55	8	55	28	60	38	9	bcd									
	5	17	2	25	9	13	12	7										
4 SHEPODY	-	20	14	47	20	44	29	14										
	-	4	5	16	9	9	8	12										
5 A8792-1	3	27	20	40	51	40	30	13	cd									
	1	5	5	23	13	7	9	10										
6 A8893-1	17	33	9	42	44	41	31	12	cd									
	5	6	2	14	12	7	8	14										
7 A9014-2	19	21	5	28	23	53	25	16	d									
	6	4	2	12	9	11	7	15										
8 A9045-7	7	35	8	58	16	27	25	17	d									
	2	6	2	19	5	5	6	16										
9 A90586-11	12	56	14	102	75	70	55	3	ab									
	3	8	4	33	21	11	13	4										
10 AC87079-3	-	-	-	26	16	-	-	-										
	-	-	-	16	13	-	-	-										
11 AC87138-4	22	52	20	36	41	65	39	8	bcd									
	7	11	7	18	12	12	11	8										
12 AC89536-5	8	49	18	127	58	123	64	2	a									
	3	9	4	38	18	23	16	2										
13 ATX9202-3RU	26	41	14	55	39	47	37	10	bcd									
	7	8	3	17	19	10	11	9										
14 PORTGNP3-138	-	80	14	-	-	122	72	1										
	-	18	4	-	-	28	17	1										
15 PORTGS124-1	-	16	21	-	-	40	26	15										
	-	3	7	-	-	7	6	17										
16 PORTGS129-1	-	40	19	-	-	66	42	7										
	-	8	6	-	-	12	9	11										
17 TXNS102	18	72	7	70	47	101	52	5	abc									
	4	14	2	22	13	19	12	5										
18 TXNS296	19	52	10	74	45	75	46	6	bcd									
	6	10	2	27	12	14	12	6										
Location Means																		
	16	45	13	57	39	67	41											
	5	9	4	21	13	13	11											

Yield < 4 OZ - Late Harvest
(CWT/A)

CA	CO	SLV ¹	AB	KIM	FRM ²	HRM	KLM	MAL	WRD	WA	Entry	
											Mean/Rank	Dunc
32	63	30	56	54	54	54	54	61	92	64	1	a
5	20	6	16	16	16	13	10	13	11	11	1	
12	34	24	34	25	42	15	36	33	28	13	e	
2	8	5	7	4	6	3	11	4	5	13		
14	59	49	33	41	63	29	24	53	38	8	cde	
4	14	16	14	10	14	6	7	10	10	5		
-	-	-	-	-	-	-	-	-	-	-	-	-
13	-	30	38	20	45	23	48	22	30	11	e	
2	-	5	7	4	7	4	14	3	6	12		
16	-	40	63	25	64	27	36	56	41	7	cde	
3	-	8	14	6	10	5	10	8	8	8		
17	-	28	34	17	29	18	25	37	26	14	e	
3	-	7	10	4	4	4	8	6	6	11		
19	-	11	31	44	56	11	37	16	28	12	e	
3	-	2	6	7	11	2	8	2	5	14		
23	-	41	43	28	48	42	86	54	46	5	bcd	
4	-	7	8	4	6	6	27	6	8	7		
19	58	30	56	18	93	57	20	36	41	6	cde	
4	12	6	16	3	22	13	7	5	10	6		
28	51	54	44	34	79	34	68	67	51	3	abc	
4	11	10	16	9	12	7	18	11	11	4		
32	70	44	92	42	91	48	43	68	57	2	ab	
5	16	9	19	7	14	9	16	10	11	2		
14	64	8	53	17	55	17	59	38	33	10	de	
2	14	2	12	3	9	3	16	5	6	10		
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
28	24	69	58	39	76	32	-	-	-	50	4	
5	6	18	15	8	14	6	-	-	-	11	3	
20	27	38	29	48	50	15	-	-	-	33	9	
3	6	10	8	10	9	3	-	-	-	7	9	
20	53	35	47	35	63	30	45	48	40			
4	12	8	12	7	11	6	13	7	8			

Numbers followed by the same letter are not significantly different at the 5% level using Duncan's multiple range test. Entries with no letters were not included in analyses due to incomplete representation at all sites.

¹Excluded from means due to missing entries.

²FRM graded by size: <1 7/8".

WESTERN REGIONAL TABLE 7. SPECIFIC GRAVITY - EARLY AND LATE HARVEST

Specific Gravity - Early Harvest

No. Clone	CA				TX				WA				Entry
	CRN	HRM	MAL	OR	DAL	SPR	ELT	WA	ELT	SPR	WA	Mean/Rank	
1 R. BURBANK	1.092	1.081	1.082		1.063	1.066	1.078	1.077	7	cdef			
2 RANGER R.	1.086	1.074	1.088		1.078	1.066	1.077	1.078	6	bcde			
3 R. NORKOTAH	1.083	1.068	1.073		1.062	1.063	1.071	1.070	16	l			
4 SHEPODY	-	1.077	1.076		1.073	1.065	1.079	1.074	11				
5 A8792-1	1.088	1.085	1.090		1.072	1.070	1.085	1.082	2	ab			
6 A8893-1	1.084	1.080	1.078		1.066	1.060	1.073	1.074	12	fghi			
7 A9014-2	1.086	1.079	1.089		1.069	1.068	1.079	1.078	5	bcde			
8 A9045-7	1.089	1.079	1.088		1.072	1.065	1.085	1.080	4	bcde			
9 A90586-11	1.090	1.080	1.095		1.080	1.078	1.083	1.084	1	a			
10 AC87079-3	-	-	-		1.068	1.063	-	-	-	-			
11 AC87138-4	1.090	1.072	1.082		1.063	1.061	1.080	1.075	10	efgh			
12 AC89536-5	1.089	1.080	1.092		1.072	1.073	1.074	1.080	3	bc			
13 ATX9202-3RU	1.086	1.078	1.084		1.067	1.066	1.074	1.076	8	defg			
14 PORTGNP3-138	-	1.069	1.069		-	-	1.071	1.069	17				
15 PORTGS124-1	-	1.073	1.071		-	-	1.076	1.073	13				
16 PORTGS129-1	-	1.077	1.073		-	-	1.076	1.075	9				
17 TXNS102	1.080	1.070	1.078		1.065	1.065	1.070	1.071	15	l			
18 TXNS296	1.086	1.068	1.079		1.066	1.063	1.069	1.072	14	ghi			
Location Means	1.087	1.076	1.082		1.069	1.066	1.076	1.076					

Numbers followed by the same letter are not significantly different at the 5% level using Duncan's multiple range test. Entries with no letters were not included in analyses due to incomplete representation at all sites.

¹Excluded from means due to missing entries.

Specific Gravity - Late Harvest

CA	CO	ID		NM		OR		WA		Entry
		AB	KIM	FRM	HRM	KLM	MAL	WRD	Mean/Rank	
TUL	SLV ¹									
1.085	1.084	1.084	1.072	1.085	1.079	1.085	1.077	1.079	1.081	9 de
1.086	1.077	1.091	1.080	1.093	1.074	1.085	1.091	1.085	1.086	4 ab
1.076	1.083	1.074	1.066	1.082	1.066	1.066	1.070	1.072	1.071	14 f
-	-	-	-	-	-	-	-	-	-	-
1.086	-	1.096	1.089	1.093	1.079	1.093	1.084	1.090	1.089	2 a
1.081	-	1.084	1.073	1.082	1.074	1.086	1.073	1.076	1.079	11 e
1.083	-	1.090	1.080	1.093	1.078	1.083	1.087	1.084	1.085	5 bc
1.084	-	1.093	1.083	1.094	1.074	1.085	1.090	1.087	1.086	3 ab
1.091	-	1.092	1.086	1.097	1.078	1.092	1.088	1.087	1.089	1 a
1.082	1.097	1.089	1.078	1.096	1.068	1.086	1.089	1.086	1.084	7 bcd
1.083	1.089	1.087	1.073	1.089	1.076	1.079	1.085	1.081	1.082	8 cde
1.085	1.084	1.085	1.077	1.090	1.078	1.084	1.090	1.086	1.084	6 bcd
1.084	1.084	1.088	1.072	1.087	1.074	1.081	1.078	1.080	1.081	10 e
-	-	-	-	-	-	-	1.084	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
1.082	1.079	1.075	1.068	1.0838	1.067	1.069	-	-	1.074	12
1.072	1.079	1.077	1.070	1.0835	1.067	1.067	-	-	1.073	13
1.083	1.084	1.086	1.076	1.089	1.074	1.082	1.084	1.083	1.082	

WESTERN REGIONAL TABLE 8. AVERAGE TUBER SIZE, AND TUBER SHAPE

No. Clone		Average Tuber Size (oz)												Tuber Shape (1-5 length/width ratio; 1=round, 5=long)															
		Early Trial						Late Trial						Early Trial						Late Trial									
		OR		TX		WA		ID		OR		WA		CA		TX		WA		CA		CO		ID		OR		WA	
HRM	DAL	SPR	ELT	Mean	AB	KIM	HRM	WRD	Mean	AB	KIM	HRM	WRD	Mean	KRN	HRM	MAL	SPR	ELT	Mean	TUL	SLV	AB	KIM	HRM	KLM	MAL	WRD	Mean
1	R. BURBANK	6.0	3.5	4.4	5.5	4.8	8.8	6.1	7.3	7.8	7.5	5.0	5.0	5.0	3.6	4.0	4.5	4.5	4.3	5.0	4.5	4.0	5.0	5.0	5.0	5.0	3.5	3.7	4.4
2	RANGER R.	9.4	4.0	5.6	7.0	6.5	9.0	9.0	10.4	10.5	9.7	4.0	5.0	4.0	3.8	4.0	4.2	4.2	3.8	5.0	5.0	4.5	5.0	5.0	5.0	3.3	4.3	4.5	
3	R. NORKOTAH	5.8	2.9	6.9	6.1	5.4	5.8	6.1	6.6	6.7	6.3	4.0	4.9	3.0	4.1	4.0	4.0	4.0	2.3	5.0	4.0	4.0	5.0	4.0	3.0	5.0	4.0		
4	SHEPODY	11.0	4.1	6.3	7.9	7.3	-	-	-	-	-	-	3.7	3.0	3.1	3.0	3.2	-	-	-	-	-	-	-	-	-	-	-	
5	A8792-1	9.8	4.0	7.0	7.5	7.1	9.4	9.0	9.5	11.1	9.8	4.0	4.5	3.0	3.8	4.0	3.9	3.9	4.8	-	3.3	3.8	5.0	3.0	3.0	3.3	3.7		
6	A8893-1	7.9	3.9	6.0	7.5	6.3	7.2	6.5	8.0	8.7	7.6	3.3	3.7	3.5	3.9	3.0	3.5	3.5	3.3	-	3.8	3.8	4.1	4.0	3.0	4.3	3.8		
7	A9014-2	9.1	4.0	6.9	6.8	6.7	8.2	8.2	11.1	9.7	9.3	3.5	4.6	3.3	4.0	4.0	3.9	3.9	3.5	-	3.8	4.0	4.5	4.0	3.0	4.7	3.9		
8	A9045-7	8.8	4.0	7.6	8.1	7.1	11.8	9.7	8.0	12.1	10.4	4.0	4.2	3.3	4.9	4.0	4.1	4.1	3.8	-	4.0	4.0	5.0	4.3	3.0	4.7	4.1		
9	A90586-11	7.9	3.9	4.8	6.8	5.8	8.5	8.8	11.1	9.6	9.5	4.0	4.8	3.3	3.6	4.8	4.1	3.9	3.5	-	4.0	4.8	5.0	4.3	2.5	3.3	3.9		
10	AC87079-3	-	4.0	5.0	-	4.5	9.7	5.9	5.5	9.5	7.6	-	-	-	3.6	-	3.6	3.6	3.5	4.0	4.0	4.0	4.3	4.0	3.0	4.3	3.9		
11	AC87138-4	7.5	4.0	5.1	6.6	5.8	7.7	6.8	8.2	8.5	7.8	4.0	4.9	3.3	4.9	4.0	4.2	4.2	4.3	5.0	3.8	4.5	4.8	4.0	3.5	4.7	4.3		
12	AC89536-5	8.5	3.9	4.9	5.0	5.6	7.0	5.4	7.0	7.6	6.8	3.5	4.7	4.0	3.5	3.8	3.9	3.9	3.3	5.0	4.0	4.5	5.0	4.0	2.7	3.7	4.0		
13	ATX9202-3RU	8.2	4.0	4.7	6.9	5.9	11.9	7.6	9.4	9.1	9.5	3.7	5.0	3.3	3.6	3.0	3.7	3.7	4.5	5.0	4.0	4.0	4.2	4.3	3.0	3.3	4.0		
14	PORTGNP3-138	5.8	-	-	4.7	5.2	-	-	-	-	-	-	4.7	3.0	-	4.0	3.9	3.9	-	-	-	-	-	-	-	-	-		
15	PORTGS124-1	11.3	-	-	8.6	10.0	-	-	-	-	-	-	4.2	3.8	-	3.5	3.8	3.8	-	-	-	-	-	-	-	-	-		
16	PORTGS129-1	8.5	-	-	6.9	7.7	-	-	-	-	-	-	3.9	2.8	-	4.0	3.6	3.6	-	-	-	-	-	-	-	-	-		
17	TXNS102	6.7	3.1	6.6	5.5	5.5	5.7	6.4	7.3	-	6.5	3.0	4.6	3.5	4.9	4.0	4.0	4.0	3.3	5.0	4.3	4.0	5.0	4.5	-	-	4.3		
18	TXNS296	7.2	3.5	7.1	6.4	6.1	6.4	6.2	7.7	-	6.8	4.0	5.0	3.5	4.5	4.0	4.2	4.2	4.0	5.0	4.0	4.8	5.0	4.8	-	-	4.6		
Location Means		8.2	3.8	5.9	6.7	6.3	8.4	7.3	8.4	9.2	8.2	3.8	4.6	3.4	4.0	3.8	3.9	3.9	3.7	4.9	4.0	4.2	4.8	4.2	3.0	4.1	4.1		

WESTERN REGIONAL TABLE 9. EXTERNAL DEFECTS MEANS OF LOCATIONS - GROWTH CRACKS, SECOND GROWTH, SHATTER BRUISE, AND SCAB ¹

No. Clone	Growth Cracks		Second Growth		Shatter Bruise		Scab	
	Early Trial	Late Trial	Early Trial	Late Trial	Early Trial	Late Trial	Early Trial	Late Trial
1 R. BURBANK	3.9 ELT 2.5	3.5 AB 2.5	3.6 ELT 2.3	2.1 WRD 1.3 KIM 1.5	5.0	5.0	4.8	5.0
2 RANGER R.	5.0	4.0 KLM 2.5	5.0	3.6 KIM 2.3	5.0	4.7 WRD 3.7	4.9	4.4
3 R. NORKOTAH	5.0	4.9	5.0	4.8	5.0	4.9	4.7	5.0
4 SHEPODY	4.8	-	4.9	-	5.0	-	3.6 ELT 1.0	-
5 A8792-1	4.3	3.3 KIM 2.5 KLM 2.3	4.9	4.9	4.9	4.6	4.9	4.5
6 A8893-1	4.6	4.4	5.0	4.7	4.7	3.8 HRM 2.8	4.8	5.0
7 A9014-2	4.8	4.6	4.8	4.3	4.8	3.9 HRM 2.3	4.9	5.0
8 A9045-7	4.8	3.7 KLM 2.3	4.9	4.5	5.0	4.8	4.7	4.6
9 A90586-11	5.0	4.4	4.5	3.7 KIM 2.8	5.0	4.5	3.4 ELT 1.0	4.5 AB 3.0
10 AC87079-3	5.0	4.4	5.0	4.6	5.0	4.4	5.0	4.6
11 AC87138-4	4.4	3.6 HRM 2.4 KIM 1.8	4.6	4.0	5.0	5.0	4.8	4.5
12 AC89536-5	4.7	4.3	5.0	4.6	4.8	4.9	5.0	4.9
13 ATX9202-3RU	4.7	4.1	-	4.7	4.6 HRM 3.5	4.2	4.8	4.9
14 PORTGNP3-138	4.9	-	5.0	-	5.0	-	4.9	-
15 PORTGS124-1	4.9	-	4.8	-	5.0	-	2.9 ELT 1.0	-
16 PORTGS129-1	4.8	-	4.0	-	5.0	-	4.4	-
17 TXNS102	4.8	4.7	4.8	4.6	5.0	5.0	4.8	4.8
18 TXNS296	4.9	4.7	3.8 ELT 2.5	4.7	5.0	5.0	4.6	4.9
Entry Means	4.7	4.2	4.7	4.3	4.9	4.6	4.5	4.8

¹All scores [1-5(none)]. Individual trial sites with extreme values are listed to the right of the entry means.

²Aberdeen shatter scores reflect dropping from shatter chamber [1-5(none)].

WESTERN REGIONAL TABLE 10. INTERNAL DEFECTS. MEANS OF LOCATIONS - HOLLOW HEART/BROWN CENTER,

No. Clone	INTERNAL BROWN SPOT, VASCULAR DISCOLORATION/NET NECROSIS, AND BLACKSPOT ¹									
	Percent Hollow Heart Plus Brown Center		Percent Internal Brown Spot		Percent Net Necrosis/ Vascular Discoloration		Blackspot Bruise [1-5(none)]			ID ²
	Early Trial	Late Trial	Early Trial	Late Trial	Early Trial	Late Trial	Early Trial	Late Trial	Early Trial	
1 R. BURBANK	16 ELT 72	15 KLM 65	3	5	2	0	3.3 HRM 2.0	3.1 HRM 2.0	3.3 HRM 2.0	2.3
2 RANGER R.	2	2	2	2	3	3 HRM 14	4.0	4.4	4.0	1.7
3 R. NORKOTAH	2	3	2	3	1	1	4.5	4.4	4.5	2.0
4 SHEPODY	1	-	1	-	6	-	4.5	-	4.5	-
5 A8792-1	1	7	0	4	0	4	3.5 HRM 2.0	4.4	3.5 HRM 2.0	2.8
6 A8893-1	6 KRN 25	8	6 KRN 25	0	2	1	4.0	4.2	4.0	2.3
7 A9014-2	1	8	0	4 TUL 25	3	0	3.2 HRM 2.0	3.9	3.2 HRM 2.0	3.2
8 A9045-7	1	1	0	0	2	1	4.0	3.6 WRD 1.9	4.0	2.4
9 A90586-11	0	2	2	3	0	1	4.0	3.6	4.0	1.9
10 AC87079-3	0	17 AB 48	0	2	0	1	-	4.0	-	2.5
11 AC87138-4	1	14 AB 53	0	0	1	1	3.5 HRM 2.0	3.0 SLV 2.1	3.5 HRM 2.0	1.2
12 AC89536-5	1	6	0	3	4	2	4.0	4.6	4.0	2.7
13 ATX9202-3RU	0	0	0	4 TUL 25	2	1	3.5 HRM 2.0	3.4	3.5 HRM 2.0	1.3
14 PORTGNP3-138	0	-	0	-	1	-	4.4	-	4.4	-
15 PORTGS124-1	2	-	0	-	13	-	4.0	-	4.0	-
16 PORTGS129-1	3	-	0	-	19	-	4.5	-	4.5	-
17 TXNS102	2	5	2	0	1	1	3.5 HRM 2.0	4.6	3.5 HRM 2.0	2.3
18 TXNS296	0	3	0	0	1	0	3.9	4.5	3.9	2.2
Entry Means	2	6	1	2	3	1	3.9	4.0	3.9	2.2

¹Individual trial sites with extreme values are listed to the right of the entry means.²Aberdeen and Kimberly Idaho blackspot scores reflect abrasive peel test [1-5(none)].

WESTERN REGIONAL TABLE 11. FRENCH FRY COLOR (00-4.0(darkest)), AND PERCENT SUGAR ENDS

No. Clone	Field Fry												Fry 45												Fry 40						% Sugar Ends																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	CO SLV						OR HRM						MAL E						Entry Mean						CO SLV						OR HRM						MAL E						Entry Mean						ID AB						KIM L						Entry Mean																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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WESTERN REGIONAL TABLE 12. DISEASE EVALUATION AND METRIBUZIN REACTION

No. Clone	Vert. Wilt/Early Dying		Early Blight ¹ (0-9) ⁵	Late Blight ³		Common		Severe Leafroll		Early Blight ¹ Tuber (0-5) ⁷	Fusarium		Erwinia Soft Rot ¹ (0-5) ⁷	Metribuzin Reaction ⁴ % Injury
	AB ¹ (0-9) ⁵	HRM ² (0-9) ⁵		Foliar (0-9) ⁵	% by Wt.	Tuber	Scab ¹ Percent ⁸	AB (99)	% Net Necrosis ⁶ HRM ²		Dry Rot ¹ (0-5) ⁷			
1 R. BURBANK	7.7	7.0	5.7	9.0	18	0	12	30	1.0	4.6	4.3	30		
2 RANGER R.	3.0	6.0	4.7	9.0	30	57	3	38	1.6	4.4	2.9	-		
3 R. NORKOTAH	8.7	8.0	7.5	9.0	13	8	3	5	1.3	3.9	3.3	40		
4 SHEPODY	5.7	-	5.8	9.0	15	49	20	-	1.3	2.8	3.7	98		
5 A8792-1	2.7	5.0	4.8	9.0	0	0	48	39	1.0	2.3	2.3	8		
6 A8893-1	7.8	5.0	6.0	9.0	20	0	2	18	2.7	3.2	2.7	10		
7 A9014-2	4.7	4.0	6.3	9.0	3	2	0	16	1.7	2.6	2.9	20		
8 A9045-7	3.0	5.0	4.0	9.0	5	19	0	21	1.0	4.5	3.0	8		
9 A90586-11	1.3	3.0	3.5	5.5	0	50	2	18	1.2	3.5	3.0	15		
10 AC87079-3	1.2	9.0	2.3	9.0	8	48	0	41	1.1	3.0	2.2	18		
11 AC87138-4	2.9	8.0	3.9	9.0	-	13	0	5	1.9	3.7	3.0	5		
12 AC89536-5	5.3	7.0	5.5	9.0	13	0	-	18	-	-	3.2	15		
13 ATX9202-3RU	4.7	7.0	5.7	9.0	28	0	-	23	-	-	3.7	20		
14 PORTGNP3-138	-	-	-	9.0	15	-	-	-	-	-	-	-		
15 PORTGS124-1	-	-	-	9.0	13	-	-	-	-	-	-	-		
16 PORTGS129-1	-	-	-	9.0	30	-	-	-	-	-	-	-		
17 TXNS102	8.2	7.0	8.0	9.0	20	2	3	13	1.0	-	3.9	-		
18 TXNS296	8.3	7.0	7.3	9.0	28	3	6	19	1.0	-	3.4	-		
Entry Means	5.0	6.3	5.4	8.8	15.2	17	18	22	1.4	3.5	3.2	24		
LSD (.05)	1.5		1.7			16			0.8	0.7				

¹ Evaluations made at Aberdeen, Idaho by Dennis Corsini.

² Evaluations made at Hermiston, Oregon by Dan Hane.

³ Evaluations made at Corvallis, Oregon by Al Mosley.

⁴ Evaluations made at Aberdeen, Idaho by Steve Love; % of foliage showing typical symptoms after 1.0 lb ai/A metribuzin applied post emergence.

⁵ 0 - 9 scale 0 = none 9 = >90% dead or dying.

⁶ % serious tuber defect = greater than 10% of tuber involved.

⁷ 0 - 5 scale 0 = none 5 = most of tuber rotted.

WESTERN REGIONAL TABLE 13. SOLIDS, DEXTROSE, SUCROSE, PROTEIN, VITAMIN C, AND GLYCOALKALOIDS - ABERDEEN

No. Clone	Solids		Sugars		Protein (%DWB) ¹	Vitamin C (mg/100g FWB) ¹	Glycoalkaloids ² (mg/100gFWB) ¹
	Oven Dry (%)	Dextrose (%FWB) ¹	Sucrose (%FWB) ¹				
1 RUSSET BURBANK	21.9	0.08	0.18		5.1	22.7	6.3
2 RANGER RUSSET	23.8	0.11	0.25		5.5	36.6	7.0
3 RUSSET NORKOTAH	21.0	0.09	0.17		5.1	26.7	2.1
5 A8792-1	25.7	0.07	0.31		6.6	19.9	1.9
6 A8893-1	21.8	0.06	0.20		7.3	26.1	9.0
7 A9014-2	24.5	0.03	0.46		7.1	31.8	1.1
8 A9045-7	24.6	0.11	0.23		5.2	27.6	4.5
9 A90586-11	25.7	0.10	0.38		6.5	32.7	13.2
10 AC87079-3	23.8	0.12	0.21		5.1	38.8	4.8
11 AC87138-4	22.3	0.11	0.25		5.7	25.5	4.4
12 AC89536-5	22.3	0.06	0.16		5.8	44.4	3.0
13 ATX9202-3RU	22.2	0.04	0.22		5.9	31.7	34.4
17 TXNS102	20.6	0.11	0.17		5.3	25.9	2.8
18 TXNS296	20.3	0.10	0.18		5.8	24.3	3.1
Entry Means	22.9	0.09	0.24		5.9	29.6	7.0

¹ DWB = Dry Weight Basis; FWB = Fresh Weight Basis

² Glycoalkaloids: The 2000 Lenape check from Aberdeen was 22.9 mg/100g

WESTERN REGIONAL TABLE 14. MERIT SCORES [1-5(best)]

No.	Clone	Process										Fresh									
		CO					ID					OR					TX				
		SLV		AB		Entry Mean/Rank	KIM		HRM		Entry Mean/Rank	SLV		AB		Entry Mean/Rank	DAL		SPR		Entry Mean/Rank
		L	L	L	L		E	L	L	E		L	L	L	L		E	L	E		
1	R. BURBANK	4.0	3.0	3.0	4.0	3.0	3.4	4	3.8	2.0	2.0	1.8	2.0	3.0	2.0	2.2	2.3	15			
2	RANGER R.	1.0	3.5	3.0	4.5	4.0	3.2	5	3.8	3.0	3.0	3.0	3.0	4.0	3.1	2.8	3.2	8			
3	R. NORKOTAH	4.0	1.0	1.5	1.0	1.0	1.7	12	4.0	4.0	3.5	4.0	4.0	3.0	3.2	3.5	3.7	5			
4	SHEPODY	-	-	-	4.0	-	-	-	-	-	-	-	1.0	-	3.3	2.8	2.4	14			
5	A8792-1	-	4.5	4.0	4.0	4.0	4.1	2	3.7	-	3.8	3.8	2.0	1.0	2.9	3.1	2.9	12			
6	A8893-1	-	4.0	3.5	2.0	3.0	3.1	6	4.0	-	4.5	3.8	2.0	1.0	3.5	3.1	3.1	11			
7	A9014-2	-	4.7	4.0	4.0	5.0	4.4	1	3.8	-	3.8	3.8	4.0	5.0	3.7	3.3	3.9	2			
8	A9045-7	-	3.5	3.2	5.0	3.0	3.7	3	2.5	-	3.8	4.0	5.0	3.0	3.2	3.0	3.5	6			
9	A90586-11	-	3.0	3.0	3.0	2.0	2.8	10	3.5	-	2.5	2.5	3.0	1.0	2.8	2.7	2.6	13			
10	AC87079-3	4.0	2.0	2.0	-	1.0	2.3	11	3.3	5.0	3.5	3.8	-	1.0	3.2	2.4	3.2	9			
11	AC87138-4	4.0	2.0	2.0	4.0	3.0	3.0	8	4.0	3.0	3.0	2.3	4.0	3.0	3.1	2.7	3.1	10			
12	AC89536-5	1.0	3.0	2.0	4.5	5.0	3.1	7	4.0	4.0	4.0	3.8	4.0	5.0	3.1	2.8	3.8	3			
13	ATX9202-3RU	1.0	2.5	3.0	4.5	4.0	3.0	8	4.5	4.0	3.0	3.8	2.0	4.0	3.8	2.9	3.5	6			
14	PORTGNP3-138	-	-	-	1.0	-	-	-	-	-	-	-	3.0	-	-	-	-	-			
15	PORTGS124-1	-	-	-	4.0	-	-	-	-	-	-	-	1.0	-	-	-	-	-			
16	PORTGS129-1	-	-	-	3.0	-	-	-	-	-	-	-	1.0	-	-	-	-	-			
17	TXNS102	3.0	1.0	1.0	2.0	1.0	1.6	13	4.0	4.0	4.0	3.0	4.0	4.0	3.6	3.5	3.8	4			
18	TXNS296	3.0	1.0	1.5	1.0	1.0	1.5	14	4.3	5.0	4.5	3.3	4.5	4.0	3.2	3.5	4.0	1			
Location Means		2.8	2.8	2.6	3.3	2.9	2.9		3.8	3.8	3.5	3.3	2.9	3.0	3.2	3.0	3.3				

WESTERN REGIONAL TABLE 15. ENTRY SUMMARY¹

No.	Clone	Year in Trial	Use	Total Yield ²	US#1's Yield ²	% US#1's ²	Tuber Size (oz)		Tuber Shape	Specific Gravity ²	Fry 45 Color	Merit Score		Noted Problems	Disposition 2001
							Early	Late				Process	Fresh		
1	R. BURBANK	-	Dual	568	330	57	4.8	7.5	Long	1.081	1.4	3.4	2.3		Check
2	RANGER R.	-	Dual	561	420	74	6.5	9.7	Long	1.086	1.5	3.2	3.2		Check
3	R. NORKOTAH	-	Fresh	377	308	81	5.4	6.3	Long	1.071	2.0	1.7	3.7		Check
4	SHEPODY	-	Proc	364	247	66	7.3	-	Oblong	1.074	-	-	2.4		Check
5	A8792-1	3	Dual	609	462	75	7.1	9.8	Obl-Lng	1.089	0.3	4.1	2.9	GC, BS (early), NN	Graduate
6	A8893-1	2	Dual	534	431	80	6.3	7.6	Obl-Lng	1.079	0.7	3.1	3.1	Shatter (late)	Continue
7	A9014-2	2	Dual	471	400	84	6.7	9.3	Obl-Lng	1.085	0.1	4.4	3.9	Shatter (late), BS (early)	Continue
8	A9045-7	1	Dual	602	494	81	7.1	10.4	Long	1.086	1.4	3.7	3.5	Growth Cracks (late)	Continue
9	A90586-11	1	Proc	647	496	75	5.8	9.5	Obl-Lng	1.089	1.6	2.8	2.6	2nd Growth (late), scab	Continue
10	AC87079-3	2	Fresh	463	364	77	4.5	7.6	Obl-Lng	1.084	1.4	2.3	3.2	HH (late), scab, NN (late)	Continue
11	AC87138-4	2	Dual	506	365	72	5.8	7.8	Long	1.082	0.8	3.0	3.1	GC (late) HH (late), BS, SE	Continue
12	AC89536-5	1	Fresh	539	428	78	5.6	6.8	Long	1.084	1.6	3.1	3.8	Smaller tuber size	Continue
13	ATX9202-3RU	1	Dual	568	480	83	5.9	9.5	Obl-Lng	1.081	0.9	3.0	3.5	BS, Tuber LB, High glyco	Continue
14	PORTGNP3-138	2	Fresh	404	257	62	5.2	-	Obl-Lng	1.069	-	-	-		Graduate
15	PORTGS124-1	2	Proc	460	341	70	10.0	-	Obl-Lng	1.073	-	-	-	Scab, NN, VD	Graduate
16	PORTGS129-1	2	Proc	455	283	59	7.7	-	Obl-Lng	1.075	-	-	-	NN, VD, Tuber LB	Graduate
17	TXNS102	2	Fresh	483	379	78	5.5	6.5	Long	1.074	1.7	1.6	3.8	2nd growth (early), ED, EB	Continue
18	TXNS296	2	Fresh	481	384	80	6.1	6.8	Long	1.073	1.8	1.5	4.0	Early die, EB, Tuber LB	Continue
Entry Means				505	382	74	6.3	8.2		1.080	1.2	2.9	3.3		

¹ Numeric values represent means across all trial locations.² Data shown from late trial results, unless the entry was in the early trial only.

WESTERN REGIONAL TABLE 16. 3 YEAR SUMMARY OF GRADUATING ENTRIES

Clone	1996						1997						2000					
	Total			US #1			Total			US #1			Total			US #1		
	Yield ¹ &(rank)	Yield ¹ & %		Yield ¹ & %			Yield ¹ &(rank)	Yield ¹ & %		Yield ¹ & %			Yield ¹ &(rank)	Yield ¹ & %		Yield ¹ & %		
A8792-1	551 (3/14)	439	1.085	0.9	3.4	3.0	634 (2/17)	510	1.089	0.9	3.0	4.3	609 (2/14)	462	1.089	0.3	2.9	4.1
R. BURBANK	509 (8/14)	348	1.080	1.5	2.6	3.2	538 (11/17)	354	1.082	1.6	2.7	3.2	568 (5/14)	330	1.081	1.4	2.3	3.4
Trial Mean	503	397	1.080	1.6	3.3	3.2	548	441	1.081	1.9	3.2	2.7	529	410	1.082	1.2	3.3	2.9
		79						80						77				

3 Year Average (1996, 1997, 2000)

Clone	Total			US #1			FRY			Merit Score		
	Yield ¹	Yield ¹ & %		Yield ¹ & %			Yield ¹	Yield ¹ & %		Fresh	Proc	Proc
A8792-1	598	470	1.088	0.7	3.1	3.8						
		77										
R. BURBANK	538	344	1.081	1.5	2.5	3.3						
		65										
Trial Mean ²	527	416	1.081	1.6	3.3	2.9						
		79										

¹ (CWT/A)

² Mean of all trial entries 1996, 1997, 2000.

National Late Blight Germplasm Evaluation Trials - 1998

K.G. Haynes, D.P. Weingartner, D.S. Douches, C.A. Thill, G. Secor, W.E. Fry, D.H. Lambert, B.J. Christ, and R. Voss

The National Late Blight Germplasm Evaluation Trials have been conducted for three years. Federal and State potato breeders are invited to submit clones for evaluation for resistance to late blight either because the submitted clone has resistance to late blight and needs to be evaluated over a wide range of environments, or because the clone is about to be named and released and information on its relative resistance or susceptibility to late blight would be valuable information for producers. Clones are tested for three years in the program. Standard check clones include a set of late blight differentials, AWN86514-2, B0692-4, B0718-3, and B0767-2, when available.

Mini-tubers of the clones were produced in the fall in the greenhouses at Beltsville, MD. Fifteen mini-tubers were distributed to each of nine locations for planting in a randomized complete block design with three replications of five hills per clone. Twenty-five potato clones (12 cultivars, 13 selections) were evaluated for late blight resistance, along with nine late blight differentials. Data were obtained from eight locations.

Spreader rows, either every other row or every third row, of Russet Burbank or Red LaSoda (Florida) were inoculated with the US-8 strain of *Phytophthora infestans* in Florida, Michigan, Minnesota, North Dakota, and Pennsylvania; and a combination of the US-8 and US-11 strains in California. New York inoculated the plots directly with the US-8 strain. The US-8 strain occurred naturally in Maine. The Wisconsin site had predominantly early blight.

In those locations where late blight did develop, planting dates, inoculation dates, and evaluation dates are given in Table 1. Percent infected foliage was recorded at approximately weekly intervals and the area under the disease progress curve was calculated. There were significant differences among clones for all locations (Table 2). Clones were also ranked within location from most resistant to most susceptible.

As in previous years, there was considerable heterogeneity of error variances among the locations (Table 2). Therefore, the non-parametric stability analyses of mean absolute rank differences (Z^1_i) and variance of the ranks (Z^2_i) were computed. Neither of these statistics was significant when summed over clones.

The box and whisker plot of the rankings of mean AUDPC by clone within locations is given in Figure 1. For each clone, the box represents the interquartile range, the horizontal line within the box represents the median, and the horizontal lines outside the box represent the minimum and maximum values excluding outliers (represented by circles).

From this year's study, we did not find significant genotype x environment interactions for the rankings on AUDPC. The rankings of the clones were stable across environments, although there was more variation across environments for the clones that were intermediate in response, than for the clones that were very resistant or very susceptible. Highly resistant clones were AWN86514-2, B0692-4, B0718-3, Bzura, Q237-25, and Robijn. Highly susceptible clones were B0178-34, B0811-13, B1004-8, Goldrush, and NorValley.

Acknowledgments: Special thanks to Diane Fleck and Karen Frazier for their work in producing mini-tubers of the clones tested. Also, thanks to Mary Camp of the Biometrical Consulting Service for the box and whisker plots.

National Late Blight Germplasm Evaluation Trials Table 1. Locations of the late blight trials in 1998, date plots were planted, date plots were inoculated with *Phytophthora infestans*, and dates plots were read for percent late blight infected foliage in the field.

<u>Location</u>	<u>Planting Date</u>	<u>Inoculation Date</u>	<u>Dates Plots Read for Late Blight</u>
Shafter, CA	1/28	3/25	4/28, 5/7, 5/15, 5/21, 5/29, 6/3, 6/9
Hastings, FL	3/13	4/29	4/24, 4/28, 4/29, 5/1, 5/4, 5/5, 5/7, 5/8, 5/11, 5/13, 5/15, 5/18, 5/20, 5/21
Presque Isle, ME	5/12	not inoculated	8/5, 8/19, 9/7, 9/15
Bath, MI	6/5	7/22	7/31, 8/6, 8/10, 8/13, 8/19, 8/24, 8/27, 9/1
Rosemount, MN	6/9	8/10	8/14, 8/21, 8/25, 8/29, 9/2, 9/12
Freeville, NY	6/19	8/14	8/17, 8/25, 8/28, 9/2, 9/7, 9/11, 9/16, 9/23
Prosper, ND	5/20	7/15	8/20, 8/21, 8/26, 9/2
Rock Springs, PA	5/29	8/10	8/27, 9/3, 9/10, 9/18

National Late Blight Germplasm Evaluation Trials Table 2. Analysis of variance on area under the disease progress curve for eight locations involved in the National Late Blight Germplasm Evaluation Trials in 1998.

<u>Source</u>	<u>Mean Squares</u>							
	<u>CA</u>	<u>FL</u>	<u>ME</u>	<u>MI</u>	<u>MN</u>	<u>NY</u>	<u>ND</u>	<u>PA</u>
Rep	193342*	172172**	323424*	100658	84311	60690*	1003112**	136731*
Clone	283665**	289745**	2896492**	864339**	956375**	1134638**	396410**	369625**
Error	55671	32288	79352	60069	29245	17094	33051	30305
R ²	0.73	0.82	0.95	0.87	0.94	0.97	0.88	0.86
CV	76.5	43.3	14.0	15.0	17.8	9.3	32.0	22.2

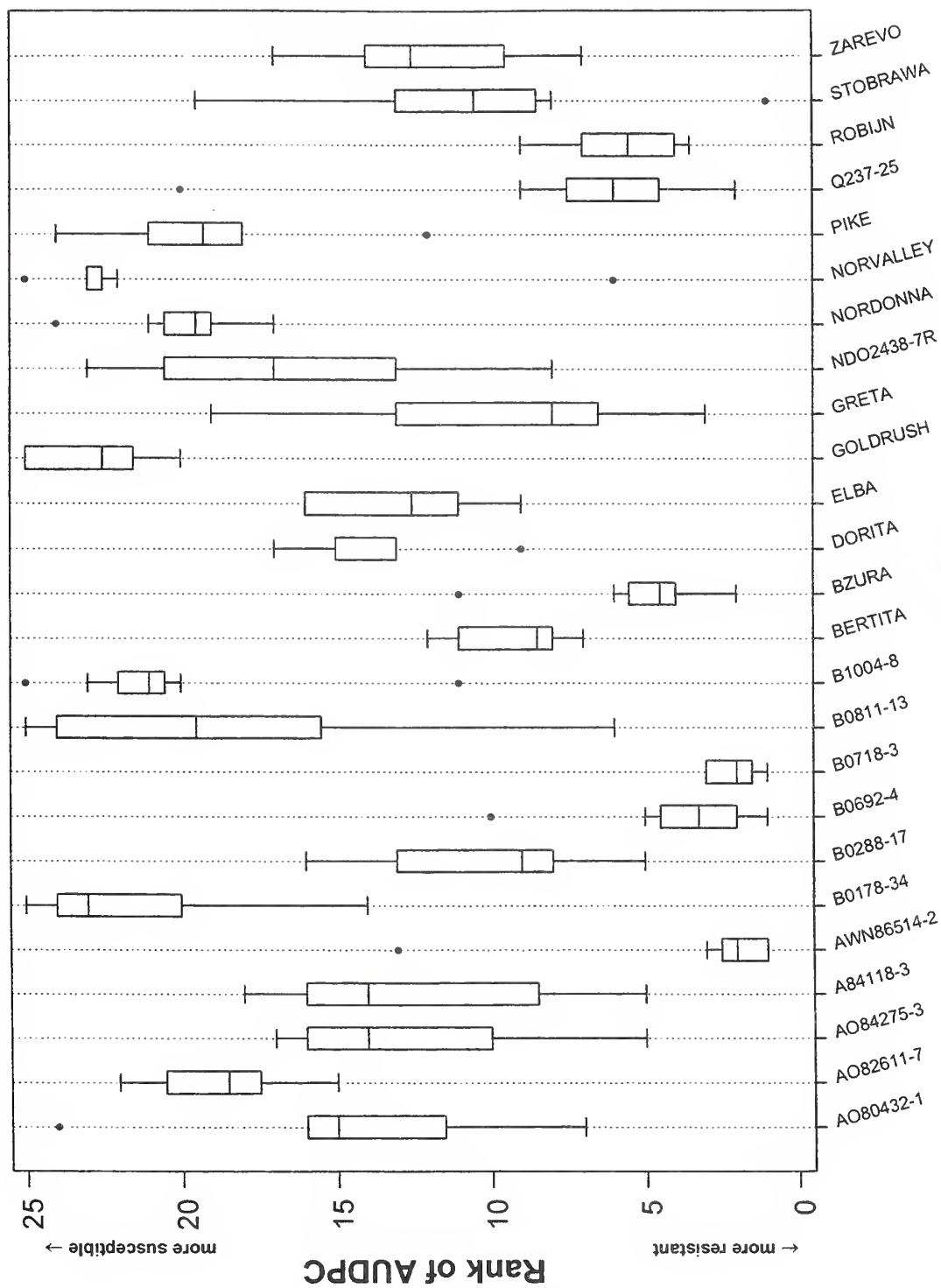
*, ** Significant at the 5% and 1% level, respectively.

National Late Blight Germplasm Evaluation Trials Table 3. Area under the disease progress curve (AUDPC) and the rankings (ranked from lowest to highest AUDPC) within locations for 25 potato clones evaluated at eight sites in the National Late Blight Germplasm Evaluation Trials in 1998. The tests of significance for mean absolute rank differences (Z_1) and variance of the ranks (Z_2) were not significant, and, therefore, are not shown.

Clone	FL		ME		MI		MN		ND		NY		PA		CA	
	AUDPC	RK	AUDPC	RK	AUDPC	RK	AUDPC	RK	AUDPC	RK	AUDPC	RK	AUDPC	RK	AUDPC	RK
AO80432-1	476	15	2305	15	1828	16	1154	16	423	11	1470	12	1230	24	99	7
AO82611-7	828	22	2985	19	2083	22	1532	19	737	18	1936	17	924	15	359	18
AO84275-3	497	16	2573	17	1100	5	715	10	414	10	1604	16	872	13	296	15
A84118-3	553	18	2089	14	1856	17	913	14	322	7	1580	15	683	10	69	5
AWN86514-2	30	2	410	2	589	2	97	1	91	3	111	1	89	1	238	13
B0178-34	975	24	2906	18	2184	24	1689	22	1200	24	2049	25	877	14	776	22
B0288-17	72	5	1547	8	1361	8	774	12	340	8	1363	10	961	16	280	14
B0692-4	56	4	446	3	463	1	287	5	25	1	219	3	249	3.5	150	10
B0718-3	10	1	346	1	799	3	231	3	88	2	199	2	232	2	59	3
B0811-13	457	13	3263	24	1919	18	1351	18	1024	21	2043	24	1274	25	97	6
B1004-8	697	21	3342	25	2054	21	1669	21	1105	23	2000	20	1123	21	162	11
Bertita	253	10	1536	7	1691	12	684	8	501	12	1351	9	619	8	102	8
Bzura	276	11	506	4	1131	6	192	2	141	4	791	5	384	5	65	4
Dorita	240	9	2017	13	1749	13	1022	15	533	13	1542	14	1019	17	-	--
Elba	391	12	2380	16	1524	9	839	13	603	16	1429	11	695	11	332	16
Goldrush	995	25	2997	20	2249	25	1727	23	1299	25	2029	22	1154	22	534	21
Greta	46	3	1904	11	1792	15	332	6	378	9	1229	7	614	7	364	19
NDO2438-7R	135	8	1925	12	1778	14	1326	17	656	17	2022	21	1223	23	475	20
NorDonna	541	17	3028	21	1994	19	1642	20	818	20	1978	19	1079	19	1247	24
NorValley	928	23	3173	23	2179	23	1786	25	1102	22	2031	23	470	6	967	23
Pike	612	19.5	3102	22	2053	20	1748	24	758	19	1938	18	1027	18	212	12
Q237-25	115	6	693	5	995	4	685	9	318	6	1080	6	1080	20	54	2
Robijn	122	7	1202	6	1133	7	248	4	219	5	585	4	249	3.5	104	9
Stobrawa	612	19.5	1812	10	1646	11	770	11	590	15	1250	8	634	9	29	1
Zarevo	465	14	1797	9	1622	10	671	7	539	14	1475	13	813	12	337	17

National Late Blight Germplasm Evaluation Trials Table 3. Continued.

Clone	<u>FL</u> <u>AUDPC RK</u>	<u>ME</u> <u>AUDPC RK</u>	<u>MI</u> <u>AUDPC RK</u>	<u>MN</u> <u>AUDPC RK</u>	<u>ND</u> <u>AUDPC RK</u>	<u>NY</u> <u>AUDPC RK</u>	<u>PA</u> <u>AUDPC RK</u>	<u>CA</u> <u>AUDPC RK</u>
Late Blight Differentials								
LBR ₀	117	821	1180	472	140	564	166	0
LBR ₁ R ₃ R ₅ R ₄	0	1881	1802	1426	247	1718	576	2
LBR ₂	447	3333	1965	1701	796	1974	893	317
LBR ₃	902	3177	2037	1542	586	1826	897	136
LBR ₄	616	2573	2045	1692	903	1910	1235	223
LBR ₅	323	2371	1737	1478	414	1902	941	712
LBR ₇	122	1590	1723	805	415	1488	917	720
LBR ₈	0	0	89	330	6	23	308	0
LBR ₉	0	0	195	191	7	19	198	0



National Late Blight Germplasm Evaluation Trials Figure 1. Box and whisker plot of the rankings of mean area under the disease progress curve for 25 potato clones evaluated in eight locations in 1998.

National Late Blight Germplasm Evaluation Trials - 1999

K.G. Haynes, R.W. Goth, D.S. Douches, C.A. Thill, G. Secor, W.E. Fry, and B.J. Christ

The National Late Blight Germplasm Evaluation Trials have been conducted for four years. Federal and State potato breeders are invited to submit clones for evaluation for resistance to late blight either because the submitted clone has resistance to late blight and needs to be evaluated over a wide range of environments, or because the clone is about to be named and released and information on its relative resistance or susceptibility to late blight would be valuable information for producers. Clones are tested for three years in the program. Standard check clones include a set of late blight differentials, AWN86514-2, B0692-4, B0718-3, and B0767-2, when available.

Mini-tubers of the clones were produced in the fall in the greenhouses at Beltsville, MD. Fifteen mini-tubers were distributed to each of nine locations for planting in a randomized complete block design with three replications of five hills per clone. Thirty-nine potato clones (23 cultivars, 16 selections) were evaluated for late blight resistance, along with eight late blight differentials. Data were obtained from six locations.

Spreader rows, either every other row or every third row, of Russet Burbank or Red LaSoda (Florida) were inoculated with the US-8 strain of *Phytophthora infestans* in Michigan, Minnesota, North Dakota and Pennsylvania. No spreader rows were planted in New York: plots were inoculated directly with 15 ml of a spore suspension with a concentration of 150 sporangia/ml of the US-8 strain. The US-8 strain occurred naturally in Maine. Wisconsin had an early infestation of early blight. Clones emerged erratically in Florida and several plots were missing altogether. California had no late blight.

In those locations where late blight did develop, planting dates, inoculation dates, and evaluation dates are given in Table 1. Percent infected foliage was recorded at approximately weekly intervals and the area under the disease progress curve was calculated. Only the data from the first two dates from Maine were included in the analysis because of the high percentage of early blight in the plots at the later dates. There were significant differences among

clones for all locations (Table 2). Clones were also ranked within location from most resistant to most susceptible.

As in previous years, there was considerable heterogeneity of error variances among the locations (Table 2). Therefore, the non-parametric stability analyses of mean absolute rank differences (Z^1_{ij}) and variance of the ranks (Z^2_{ij}) were computed (Table 3). The sum of the variance of the ranks (Z^2_{ij}) was significant. However, no single clone made a significant contribution to this measure of genotype x environment interaction.

The box and whisker plot of the rankings of mean AUDPC by clone within locations is given in Figure 1. For each clone, the box represents the interquartile range, the horizontal line within the box represents the median, and the horizontal lines outside the box represent the minimum and maximum values excluding outliers (represented by circles).

From this year's study, we once again found significant genotype x environment interactions for the rankings on AUDPC. However, no one clone contributed to this significance. The rankings of the clones were stable across environments, although there was more variation across environments for the clones that were intermediate in response, than for the clones that were very resistant or very susceptible. Highly resistant clones were A90586-11, AWN86514-2, B0288-17, B0767-2, Q237-25, and Robijn. Highly susceptible clones were BCO894-2, Dark Red Norland, NorValley, and W1100R.

Acknowledgments: Special thanks to Diane Fleck and Karen Frazier for their work in producing mini-tubers of the clones tested. Also, thanks to Mary Camp of the Biometrical Consulting Service for the box and whisker plots.

National Late Blight Germplasm Evaluation Trials Table 1. Locations of the late blight trials in 1999, date plots were planted, date plots were inoculated with *Phytophthora infestans*, and dates plots were read for percent late blight infected foliage in the field.

<u>Location</u>	<u>Planting Date</u>	<u>Inoculation Date</u>	<u>Dates Plots Read for Late Blight</u>
Presque Isle, ME	5/27	not inoculated	8/24, 9/2
Bath, MI	5/27	7/23	8/5, 8/10, 8/13, 8/16, 8/19, 8/23
Rosemount, MN	6/28	9/1	9/15, 9/20, 9/24, 9/30, 10/4
Freeville, NY	6/18	8/13	8/16, 8/23, 8/27, 8/31, 9/8, 9/15, 9/23
Prosper, ND	5/18	7/28	8/19, 8/26, 9/2
Rock Springs, PA	6/4	8/19	9/7, 9/10, 9/14

National Late Blight Germplasm Evaluation Trials Table 2. Analysis of variance on area under the disease progress curve for six locations involved in the National Late Blight Germplasm Evaluation Trials in 1999.

<u>Source</u>	<u>Mean Squares</u>					
	<u>ME</u>	<u>MI</u>	<u>MN</u>	<u>NY</u>	<u>ND</u>	<u>PA</u>
Rep	12256*	282016**	95740**	164258**	2023776**	22557**
Clone	48804**	245783**	123371**	1530829**	250750**	112440**
Error	3705	14559	16726	15592	40403	3641
R ²	0.87	0.90	0.81	0.98	0.82	0.94
CV	30.3	16.6	48.8	5.6	25.2	11.8

*, ** Significant at the 5% and 1% level, respectively.

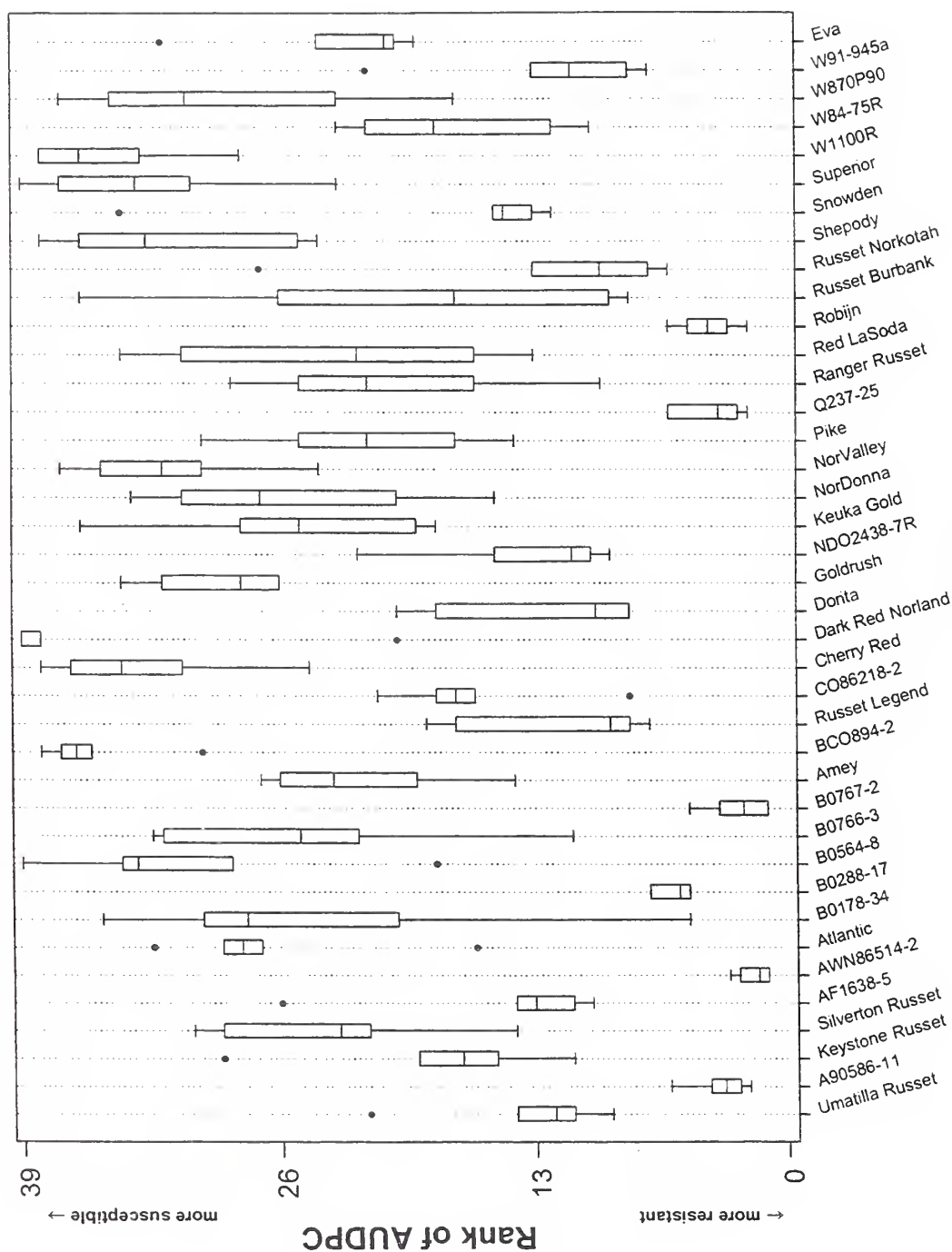
National Late Blight Germplasm Evaluation Trials Table 3. Area under the disease progress curve (AUDPC) and the rankings (ranked from lowest to highest AUDPC) within locations for 39 potato clones evaluated at six sites in the National Late Blight Germplasm Evaluation Trials in 1999 and the tests of significance for mean absolute rank differences (Z'_1) and variance of the ranks (Z'^2_1).

Clone	ME		MI		MN		NY		ND		PA		$G \times E^1$	
	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	Z'_1	Z'^2_1
A90586-11	0	3	273	6	30	3.5	478	3	90	2	77	4	ns	ns
AF 1638-5	128	14	878	26	123	11	2313	13	837	13	432	10	ns	ns
Amey	270	24.5	764	14	338	27	2528	22	878	19	614	26	ns	ns
Atlantic	323	32.5	901	27	415	29	2609	27	865	16	655	29	ns	ns
AWN86514-2	0	1.5	72	3	23	1	300	2	18	1	22	1	ns	ns
B0178-34	225	20	920	30	38	5	2727	35	968	28.5	639	27	ns	ns
B0288-17	8	5	220	5	71	7	1222	6	502	7	233	5	ns	ns
B0564-8	308	28.5	938	33	468	34	2488	18	1097	39	663	33.5	ns	ns
B0766-3	323	32.5	876	25	265	22	2581	25	738	11	662	32	ns	ns
B0767-2	0	1.5	26	1	30	3.5	284	1	376	5	40	2	ns	ns
BCO894-2	375	37	991	38	587	36.5	2647	30	1062	36	671	35.5	ns	ns
CO86218-2	173	17	556	8	228	21	2459	16	876	18	553	17	ns	ns
Cherry Red	270	24.5	952	35	587	36.5	2697	33	1003	31	682	38	ns	ns
Dk. Red Norland	413	39	857	20	1444	39	2886	39	1088	38	698	39	ns	ns
Dorita	90	9.5	590	10	222	20	2022	8	508	8	556	18	ns	ns
Eva	225	20	858	21	428	32	2511	19	895	20	608	24	ns	ns
Goldrush	285	26	941	34	325	26	2619	28	1018	32	651	28	ns	ns
Keuka Gold	195	18	959	36	377	28	2606	26	951	24	575	19	ns	ns
Keystone Russet	135	15	849	19	201	18.5	2626	29	843	15	473	11	ns	ns
NDO2438-7R	240	22	758	12	111	10	2127	10	671	9	527	15	ns	ns
NorDonna	225	20	931	31	170	15	2567	24	977	30	663	33.5	ns	ns
NorValley	341	35	935	32	299	24	2674	32	1073	37	660	30	ns	ns
Pike	255	23	837	17	418	30	2349	14	954	25	586	20	ns	ns
Q237-25	0	4	57	2	46	6	694	4	134	3	255	6	ns	ns
Ranger Russet	90	9.5	868	22	305	25	2523	21	968	28.5	534	16	ns	ns

National Late Blight Germplasm Evaluation Trials Table 3. Continued.

Clone	ME		MI		MN		NY		ND		PA		G x E ¹	
	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	Z ₁ ¹	Z ₂ ¹
Red LaSoda	120	13	784	16	187	17	2722	34	965	27	661	31	ns	ns
Robijn	24	6	205	4	25	2	1116	5	281	4	76	3	ns	ns
Russet Burbank	68	8	848	18	178	16	2732	36	963	26	421	9	ns	ns
Russet Legend	32	7	577	9	201	18.5	2064	9	866	17	413	8	ns	ns
Russet Norkotah	300	27	371	7	155	13	1917	7	426	6	490	12	ns	ns
Shepody	360	36	870	24	660	38	2667	31	1041	34.5	610	25	ns	ns
Silverton Russet	315	30.5	909	29	287	23	2560	23	840	14	598	21.5	ns	ns
Snowden	330	34	771	15	168	14	2362	15	776	12	508	13	ns	ns
Superior	315	30.5	1011	39	424	31	2746	37	930	23	671	35.5	ns	ns
Umatilla Russet	113	12	722	11	100	9	2300	12	901	21.5	518	14	ns	ns
W84-75R	165	16	869	23	135	12	2515	20	726	10	598	21.5	ns	ns
W91-945a	98	11	763	13	95	8	2204	11	901	21.5	321	7	ns	ns
W870P90	308	28.5	968	37	450	33	2481	17	1041	34.5	605	23	ns	ns
W1100R	383	38	907	28	509	35	2814	38	1021	33	677	37	ns	ns
Late Blight Differentials														
LBR ₁ R ₂ R ₃ R ₄	56		874		199		2703		828		273			
LBR ₂	83		747		616		2833		898		531			
LBR ₃	180		805		213		2541		845		451			
LBR ₄	-		905		234		2616		998		569			
LBR ₅	60		755		136		2215		828		371			
LBR ₇	19		370		78		771		144		379			
LBR ₈	0		-		0		0		0		2			
LBR ₉	0		53		28		0		0		12			

¹ Two measures of genotype x environment interactions: Z₁¹ and Z₂¹. ns = not significant



National Late Blight Germplasm Evaluation Trials Figure 1. Box and whisker plot of the rankings of mean area under the disease progress curve for 39 potato clones evaluated in six locations in 1999.

National Late Blight Germplasm Evaluation Trials - 2000

K.G. Haynes, C.A. Thill, G. Secor, W.E. Fry, D.S. Douches, W.R. Stevenson, and D.P. Weingartner

The National Late Blight Germplasm Evaluation Trials have been conducted for five years. Federal and State potato breeders are invited to submit clones for evaluation for resistance to late blight either because the submitted clone has resistance to late blight and needs to be evaluated over a wide range of environments, or because the clone is about to be named and released and information on its relative resistance or susceptibility to late blight would be valuable information for producers. Clones are tested for three years in the program. Standard check clones include a set of late blight differentials, AWN86514-2, B0692-4, B0718-3, and B0767-2, when available.

Mini-tubers of the clones were produced in the fall in the greenhouses at Beltsville, MD. Fifteen mini-tubers were distributed to each of nine locations for planting in a randomized complete block design with three replications of five hills per clone. Thirty-four potato clones (20 cultivars, 14 selections) were evaluated for late blight resistance, along with eight late blight differentials. Data were obtained from six locations.

Spreader rows, either every other row or every third row, of Russet Burbank or Red LaSoda (Florida) were inoculated with the US-8 strain of *Phytophthora infestans* in Michigan, Minnesota, and North Dakota; and the US-11 strain in New York. The US-8 strain occurred naturally in Florida and Wisconsin. No late blight developed at the California location. An early frost destroyed the Maine and Pennsylvania tests.

In those locations where late blight did develop, planting dates, inoculation dates, and evaluation dates are given in Table 1. Percent infected foliage was recorded at approximately weekly intervals and the area under the disease progress curve was calculated. Only the data from the first three dates from Wisconsin were included in the analysis because of the high percentage of early blight in the plots at the later dates. There were significant differences among clones for all locations (Table 2). Because the late blight differentials were very slow to emerge in Florida, they were not included in the overall analysis at any location. Clones were also ranked within

location from most resistant to most susceptible.

As in previous years, there was considerable heterogeneity of error variances among the locations (Table 2). Therefore, the non-parametric stability analyses of mean absolute rank differences (Z^1) and variance of the ranks (Z^2) were computed (Table 3). Since NorValley was missing from three of the six locations, it was dropped from the stability analyses, and the ranks within location were adjusted accordingly. However, the results from the three locations which did plant it are shown in Table 3. The sum of the variance of the ranks (Z^2) was significant. However, only Q237-25 made a significant contribution to this measure of genotype x environment interaction.

The box and whisker plot of the rankings of mean AUDPC by clone within locations is given in Figure 1. For each clone, the box represents the interquartile range, the horizontal line within the box represents the median, and the horizontal lines outside the box represent the minimum and maximum values excluding outliers (represented by circles).

From this year's study, we once again found significant genotype x environment interactions for the rankings on AUDPC. However, only one clone contributed to this significance: Q237-25. With the exception of Q237-25, the rankings of the clones were stable across environments, although there was more variation across environments for the clones that were intermediate in response, than for the clones that were very resistant or very susceptible. Highly resistant clones were A90586-11, B0692-4, B0767-2, and Q237-25. Highly susceptible clones were BC0894-2, W1100R, Atlantic, and Superior.

Acknowledgments: Special thanks to Diane Fleck and Karen Frazier for their work in producing mini-tubers of the clones tested. Also, thanks to Mary Camp of the Biometrical Consulting Service for the box and whisker plots.

National Late Blight Germplasm Evaluation Trials Table 1. Locations of the late blight trials in 2000, date plots were planted, date plots were inoculated with *Phytophthora infestans*, and dates plots were read for percent late blight infected foliage in the field.

<u>Location</u>	<u>Planting Date</u>	<u>Inoculation Date</u>	<u>Dates Plots Read for Late Blight</u>
Hastings, FL	3/9	not inoculated	4/5, 4/7, 4/10, 4/12, 4/17, 4/21, 4/25, 4/28, 5/2, 5/5, 5/9
Bath, MI	6/6	7/27	8/4, 8/7, 8/11, 8/14, 8/16, 8/18, 8/21, 8/23, 8/28
Rosemount, MN	6/10	8/10	8/10, 8/21, 8/24, 8/28, 9/1, 9/5, 9/7
Freeville, NY	6/20	8/11	8/14, 8/18, 8/22, 8/25, 8/30, 9/4, 9/8, 9/12, 9/15
Prosper, ND	5/24	7/18	8/18, 8/25, 9/1
Hancock, WI	5/4	not inoculated	7/10, 7/18, 7/24

National Late Blight Germplasm Evaluation Trials Table 2. Analysis of variance on area under the disease progress curve for six locations involved in the National Late Blight Germplasm Evaluation Trials in 2000.

<u>Source</u>	<u>Mean Squares</u>					
	<u>FL</u>	<u>MI</u>	<u>MN</u>	<u>NY</u>	<u>ND</u>	<u>WI</u>
Rep	835541**	62371	63831**	249666**	106710**	6676
Clone	699498**	224693**	169776**	890376**	35130*	11870**
Error	39977	22200	4934	21180	20769	2417
R ²	0.91	0.84	0.95	0.96	0.50	0.72
CV	17.5	21.0	5.9	12.0	38.6	38.9

*,** Significant at the 5% and 1% level, respectively.

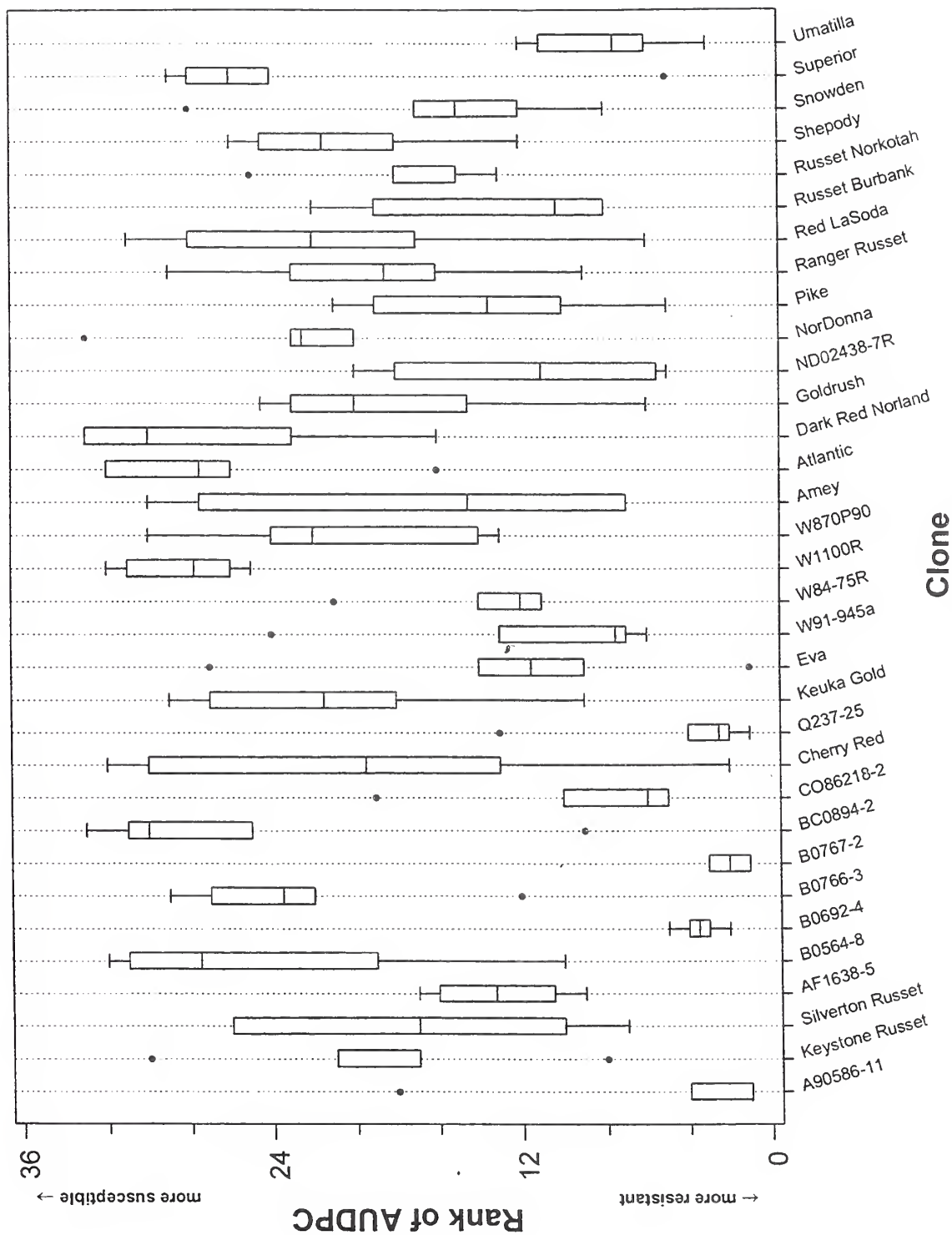
National Late Blight Germplasm Evaluation Trials Table 3. Area under the disease progress curve (AUDPC) and the rankings (ranked from lowest to highest AUDPC) within locations for 34 potato clones evaluated at six sites in the National Late Blight Germplasm Evaluation Trials in 2000 and the tests of significance for mean absolute rank differences (Z^1_{ij}) and variance of the ranks (Z^2_{ij}).

Clone	FL		MI		MN		NY		ND		WI		$G \times E^1$	
	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	Z^1_{ij}	Z^2_{ij}
A90586-11	246	4	98	4	570	1	85	4	382	18	1	1	ns	ns
AF 1638-5	1112	12	745	16	1170	11	1077	9	373	17	132	14	ns	ns
Amey	1727	30	644	11	1333	27	1415	18	282	7	90	7	ns	ns
Atlantic	1672	28	1056	33	1323	26	1745	33	364	16	176	27	ns	ns
B0564-8	1304	19	890	26	1429	31	1667	30	300	10	234	32	ns	ns
B0692-4	141	2	77	3	637	3	99	6	253	4	4	4	ns	ns
B0766-3	1595	27	969	29	1317	25	1505	23	325	12	151	22	ns	ns
B0767-2	231	3	40	1	586	2	40	3	123	1	2	2	ns	ns
BCO894-2	1053	9	1091	34	1428	30	1743	32	492	31	165	25	ns	ns
CO86218-2	-	--	530	6	984	5	1081	10	389	19	61	5	ns	ns
Cherry Red	1327	20	784	19	1435	32	1719	31	233	2	125	13	ns	ns
Dk. Red Norland	1273	16	998	31	1448	33	1860	34	415	23	211	29	ns	ns
Eva	1253	14	604	9	1223	14	17	1	445	27	100	9	ns	ns
Goldrush	933	6	859	22	1258	18	1513	24	432	24	132	15	ns	ns
Keuka Gold	1303	18	940	27	1144	9	1467	19	459	29	155	24	ns	ns
Keystone Russet	1374	21	751	17	1257	17	1405	17	291	8	215	30	ns	ns
NDO2438-7R	-	--	527	5	1256	16	871	5	397	20	-	-	ns	ns
NorDonna	1476	23	862	23	1294	22	1469	20	704	34	144	20	ns	ns
NorValley	-	--	1001	32	-	--	1487	21	471	30	-	-	--	--
Pike	651	5	656	12	1270	19	1381	15	401	21	106	10	ns	ns
Q237-25	57	1	45	2	708	4	19	2	340	13	3	3	ns	*
Ranger Russet	1716	29	828	21	1310	23	1394	16	297	9	133	16	ns	ns
Red LaSoda	1295	17	787	20	1315	24	1609	29	518	32	73	6	ns	ns
Russet Burbank	1074	10	575	8	1170	10	1037	8	403	22	142	19	ns	ns
Russet Norkotah	-	--	871	25	1243	15	1242	13	356	15	137	18	ns	ns

National Late Blight Germplasm Evaluation Trials Table 3. Continued.

Clone	FL		MI		MN		NY		ND		WI		G x E ¹	
	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	AUDPC	RANK	Z ₁₋₁₀ ¹	Z ₁₋₁₀ ²
Shepody	1439	22	760	18	1211	12	1580	27	432	25	150	21	ns	ns
Silverton Russet	947	7	616	10	1271	20	1302	14	439	26	167	26	ns	ns
Snowden	1268	15	728	15	1128	8	1177	12	446	28	136	17	ns	ns
Superior	1527	25	863	24	1358	29	1606	28	255	5	193	28	ns	ns
Umatilla Russet	958	8	545	7	998	6	1089	11	235	3	116	12	ns	ns
W84-75R	1105	11	707	14	1213	13	1489	22	307	11	115	11	ns	ns
W91-945a	1485	24	686	13	1063	7	898	6	274	6	92	8	ns	ns
W870P90	1226	13	982	30	1280	21	1565	25	341	14	154	23	ns	ns
W1100R	1563	26	967	28	1333	28	1575	26	529	33	227	31	ns	ns
Late Blight Differentials														
LBR ₁ R ₂ R ₃ R ₄	-		485		1062		179		379		29			
LBR ₂	-		936		1308		605		316		84			
LBR ₃	-		880		1188		138		356		72			
LBR ₄	-		960		1296		638		403		114			
LBR ₅	-		532		1218		1148		361		110			
LBR ₇	-		422		708		434		312		24			
LBR ₈	-		16		77		0		306		0			
LBR ₉	-		-		-		0		-		-			

¹ Two measures of genotype x environment interactions: Z₁¹ and Z₁². ns = not significant, * = significant at the 5% level, - = not included in analysis.



National Late Blight Germplasm Evaluation Trials Figure 1. Box and whisker plot of the rankings of mean area under the disease progress curve for 33 potato clones evaluated at six locations in 2000.

COLORADO

D. G. Holm and F. G. Popiel¹

Objectives

The primary objectives of the Colorado potato breeding and selection program are to develop new potato cultivars with increased yield, improved quality, resistance to diseases and pests, and tolerance to environmental stresses for Colorado. Other objectives are to provide a basic seed source to growers for seed increase and commercial testing; and to evaluate promising selections for potential seed export (interstate and international).

The primary emphasis of the Colorado potato breeding and selection program is placed on developing dual purpose fresh and processing russets. The balance of the breeding effort, based on priority, is devoted to developing reds, chippers, and specialty cultivars. The development of "low input" cultivars, primarily for reduced nitrogen and fungicide input, is also an emphasis.

A major emphasis is being placed on developing Colorado cultivars that are resistant to late blight (foliar and tuber). Other areas of increased emphasis are: 1) developing cultivars immune to PVY; 2) developing cultivars with tuber resistance to dry rot (*Fusarium* and early blight) and bacterial soft rot; 3) identifying and incorporating breeding material demonstrating resistance to powdery scab; and 4) developing protocols to screen and evaluate advanced selections for reduced tuber greening potential and red skin color retention in storage.

Breeding Program

Ninety-seven parental clones were intercrossed in 2000 in two separate crossing blocks. The emphasis of the first crossing block was late blight resistance and the second emphasized cultivar development and virus resistance. Seed from 417 combinations were obtained. Approximately 36,000 seedling tubers representing 159 families were produced from 1999 and 2000 crosses for initial field selection in 2001.

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Approximately 21,200 seedlings, representing 72 families, are currently being grown in the greenhouse and will be harvested soon. Most of these families represent the first 2000 crossing block. Second through fourth size tubers will be distributed to Idaho, Minnesota, Oregon, Texas, and Alberta, Canada.

Additional seedlings tubers were obtained from Dr. Richard G. Novy, Dr. Dermot Lynch, Agriculture Canada, Lethbridge, Alberta; and Dr. J. Creighton Miller, Texas A&M University, College Station, Texas.

Selection Program

Approximately 75,000 first-year seedlings were grown in 2000 with 834 being selected for subsequent planting, evaluation, and increase in future years. Another 1,104 clones were in 12-hill, preliminary, and intermediate stages of selection. Of these, 283 were saved for further observation. Twenty-eight advanced selections were saved at harvest and will be increased pending final evaluations. Another 202 selections were maintained for germplasm development, breeding, other experimental purposes, or seed increases for other programs.

Table 1 summarizes the cultural information for the trials conducted at the San Luis Valley Research Center in 2000.

Data for the Advanced Yield Trial (Tables 2-4), Advanced and Western Regional Chip Trial (Tables 5-7), Advanced and Western Regional Red/Specialty Trial (8-9) are included in this report. Results of the Southwestern Regional Trial and the Western Regional Main Trial are presented elsewhere in this publication.

Colorado advanced selections evaluated in Southwestern Regional Trials, Western Regional Trials, or by growers in 2000 included ten russets (AC83064-1, AC83064-6, AC87079-3, AC87084-3, AC87138-4, AC89536-5, AC90636-3, AC91014-2, AC91365-1, CO85026-4), four reds (CO86218-2, CO89097-2, NDC5281-2, DT6063-1R), and four chippers (AC87340-2, AC89653-3, BC0894-2, CO92059-8). Comparative data for many of these selections and standard cultivars is presented in Table 10.

Selections that were discarded from further testing include AC90636-3, AC91365-1, and CO92059-8. Final status of AC87084-3 and AC89653-3 is pending further evaluations.

Release notices for the cultivars *Keystone Russet* (AC83064-1), *Silverton Russet* (AC83064-6) were completed in 2000. Release notices are in preparation for *Cherry Red* (DT6063-1R), *Fremont Russet* (CO85026-4), and *Durango Red* (CO86218-2) and BC0894-2, a chipper with international export potential.

Colorado Table 1. Cultural information for the 2000 trials at the San Luis Valley Research Center.

LOCATION: San Luis Valley Research Center

SOIL TYPE: Sandy Loam

DATE:

Planted - 5/17/00

Hilled - 6/1/00

Vines Killed - 8/31/00 (sulfuric acid - 28 gal/A)

Harvested - 9/27/00

PLOT INFORMATION:

Size of Plots - 1 row x 25'

Spacing Between Hills - 12"

Spacing Between Rows - 34"

Hills Per Plot - 25

Number of Reps - 4 (2 for Intermediate Yield Trial)

METHOD OF HARVEST:

Machine (Grimme 1-row)

FERTILIZER:

5/09/00 - 120 lbs N + 150 lbs P₂O₅ + 60 lbs K₂O/A (liquid applied in-row)

6/29/00 - 20 lbs N (fertigated)

7/13/00 - 20 lbs N (fertigated)

IRRIGATION:

Center Pivot -18.4" gross application (application frequency and amount based on ET)

Rainfall - 2.2"

INSECTICIDES APPLIED:

6/27/00 - Fulfill (5.5 oz a.i./A)

7/08/00 - Fulfill (5.5 oz a.i./A)

7/22/00 - Thiodan 3EC (1.0 lb a.i./A)

8/05/00 - Asana XL (0.7 oz a.i./A)

8/19/00 - Thiodan 3EC (1.0 lb a.i./A)

FUNGICIDES APPLIED:

6/27/00 - Dithane F-45 (1.2 lb a.i./A)

7/08/00 - Quadris (0.1 lb a.i./A)

7/22/00 - Bravo Ultrex (1.1 lb a.i./A)

7/28/00 - Super Tin 80WP (0.2 lb a.i./A)

8/05/00 - Bravo Weather Stick (0.9 lb a.i./A)

8/19/00 - Dithane F-45 (1.5 lb a.i./A)

HERBICIDES APPLIED:

6/02/00 - Dual Magnum (1.2 pint a.i./A) + Sencor DF (0.1 lb a.i./A)

7/10/00 - Poast (0.3 lb a.i./A)

Colorado Table 2. Yield, grade, tuber shape, and skin type for Advanced Yield Trial clones - 2000.

Clone	Yield (Cwt/A)					Tuber Shape & Skin Type ¹
	Total	US #1			<4 oz	
		Total	%	>10 oz		
AC83064-1	460	412	89.4	123	44	Ob,Ru
AC83064-6	367	304	82.8	55	58	Ob,Ru
AC87084-3	515	480	93.2	236	26	Ob,Ru
AC92009-4	336	290	86.4	66	42	Ob,Ru
AC93026-9	400	302	75.6	79	85	Ob,Ru
AC93047-1	314	235	74.7	37	65	Ob,Ru
CO85026-4	398	357	89.6	119	30	Ob,Ru
CO92027-2	331	269	81.0	34	60	Ob,Ru
CO92077-2	354	271	76.6	63	75	Ob,Ru
CO93001-11	393	331	84.2	59	54	Ob,Ru
CO93016-3	387	288	74.1	62	96	Ob,Ru
CO93024-2	460	383	83.2	138	35	Ob,Ru
NDC5372-1	388	292	75.0	60	79	Ob,Ru
TC1675-1	409	330	80.4	99	68	Ob,Ru
Russet Norkotah	405	315	77.8	64	83	Ob,Ru
Russet Nugget	397	281	70.9	58	107	Ob,Ru
Mean	395	321	80.9	85	63	----
LSD ² (0.05)	48	55	6.6	38	24	----

¹Tuber shape & skin type: Ob=oblong; Ru=russet.

²LSD=least significant difference.

Colorado Table 3. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced Yield Trial clones - 2000.

Clone	Blackspot Index ¹			%	Dormancy (Days) ³	Enzymatic Browning ⁴
	Bud End	Stem End	Average	Weight Loss ²		
AC83064-1	5.0	5.0	5.0	3.2	63	5.0
AC83064-6	4.0	3.9	4.0	4.1	63	3.6
AC87084-3	1.8	2.5	2.2	4.5	77	1.2
AC92009-4	5.0	4.9	5.0	4.0	133	4.0
AC93026-9	2.8	2.6	2.7	3.9	112	3.6
AC93047-1	2.7	2.7	2.7	4.7	112	2.8
CO85026-4	2.8	1.8	2.3	2.9	84	4.4
CO92027-2	3.7	4.2	4.0	4.2	70	4.6
CO92077-2	4.6	3.7	4.2	3.4	70	2.8
CO93001-11	3.3	3.7	3.5	5.1	51	3.2
CO93016-3	3.7	2.6	3.2	4.4	58	1.2
CO93024-2	1.9	1.9	1.9	4.1	58	1.0
NDC5372-1	5.0	2.8	3.9	4.0	91	2.6
TC1675-1	4.2	2.8	3.5	2.4	105	2.8
Russet Norkotah	4.8	3.9	4.4	3.8	98	3.0
Russet Nugget	4.6	4.8	4.7	3.0	98	3.8

¹ Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

² Tubers were stored at 45F for 91 days.

³ Days from harvest to first visible growth. Tubers were stored at 45F.

⁴ Degree of darkening rated at 60 minutes after slicing fresh lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Colorado Table 4. Specific gravity, french fry color, and texture for Advanced Yield Trial clones - 2000.

Clone	Specific Gravity	Fry Color ¹		Fry Texture ²	
		At Harvest	4 wks 50F+ 8 wks 45F	At Harvest	4 wks 50F+ 8 wks 45F
AC83064-1	1.084	2	4	3	3
AC83064-6	1.083	1	2	2	2
AC87084-3	1.092	2	2	3	3
AC92009-4	1.089	2	3	3	3
AC93026-9	1.084	3	4	3	3
AC93047-1	1.096	2	2	2	3
CO85026-4	1.092	3	4	2	2
CO92027-2	1.087	2	2	4	4
CO92077-2	1.075	2	2	3	2
CO93001-11	1.077	1	1	3	3
CO93016-3	1.090	1	1	4	4
CO93024-2	1.089	2	2	3	3
NDC5372-1	1.081	1	2	2	2
TC1675-1	1.091	1	1	4	4
Russet Norkotah	1.079	2	2	2	3
Russet Nugget	1.091	2	3	4	3

¹ Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

² Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Colorado Table 5. Yield, grade, tuber shape, and skin type for Advanced and Western Regional Chipping Trial clones - 2000.

Clone	Yield (Cwt/A)					Tuber Shape & Skin Type ¹
	Total	US #1			<4 oz	
		Total	%	>10 oz		
AC87340-2	481	413	85.8	120	61	R,W
AC89653-3	495	368	74.2	37	123	R,W
AF875-15	456	357	78.4	76	85	R,W
BC0894-2	346	283	81.7	59	56	Ov,W
CO94027-6	310	179	57.8	17	127	R,W
CO94032-3	339	230	67.9	19	107	R,W
ND2676-10	369	304	82.6	69	62	R,W
NDC6084C-2	399	327	81.8	92	65	R,W
NDC6116-3	449	373	82.9	70	71	R,W
NDC6135-1	369	218	59.0	16	147	R,W
NDTX4930-5	456	397	86.8	138	53	Ov,W
VC1002-1	306	156	51.5	5	150	R,W/Y
VC1002-3	436	217	50.0	10	219	R,W/Y
Atlantic	468	413	88.0	118	51	R,W
Chipeta	546	415	75.8	194	62	Ov,W
Mean	415	310	73.6	69	96	----
LSD ² (0.05)	58	60	7.8	47	29	----

¹ Tuber shape & skin type: R=round; Ov=oval; W=white; W/Y=white with yellow flesh.

² LSD=least significant difference.

Colorado Table 6. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Chipping Trial clones - 2000.

Clone	Blackspot Index ¹			% Weight Loss ²	Dormancy (Days) ³	Enzymatic Browning ⁴
	Bud End	Stem End	Average			
AC87340-2	2.7	3.6	3.2	3.5	77	4.0
AC89653-3	4.1	3.8	4.0	4.3	63	4.8
AF875-15	3.4	3.0	3.2	4.9	77	3.8
BC0894-2	4.8	3.8	4.3	3.4	91	2.8
CO94027-6	2.4	1.4	1.9	8.5	91	4.6
CO94032-3	3.0	2.5	2.8	6.1	77	4.4
ND2676-10	4.6	3.3	4.0	4.0	91	4.2
NDC6084C-2	3.8	2.0	2.9	5.5	77	2.4
NDC6116-3	2.7	2.8	2.8	6.1	84	2.2
NDC6135-1	3.8	2.3	3.1	7.2	77	4.2
NDTX4930-5	3.8	2.9	3.4	3.9	91	3.8
VC1002-1	2.8	3.0	2.9	4.2	112	5.0
VC1002-3	4.1	4.3	4.2	3.8	91	4.2
Atlantic	2.8	2.3	2.6	6.2	84	4.4
Chipeta	4.2	3.9	4.1	3.1	91	4.4

¹ Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

² Tubers were stored at 45F for 91 days.

³ Days from harvest to first visible growth. Tubers were stored at 45F.

⁴ Degree of darkening rated at 60 minutes after slicing fresh lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Colorado Table 7. Chip color¹ after various storage regimes and specific gravity of Western Regional Chipping Trial clones - 2000.

Clone	Specific Gravity	6 wks 40F	6 wks/40F +3 wks/60F	6 wks 50F	6 wks/50F +3 wks/60F
AC87340-2	1.083	5.0	5.0	2.5	2.5
AC89653-3	1.092	4.5	3.5	3.0	3.5
AF875-15	1.095	4.5	4.0	3.5	4.0
BC0894-2	1.078	4.0	3.5	2.0	3.0
CO94027-6	1.091	4.0	3.5	1.5	3.0
CO94032-3	1.090	3.5	3.0	2.5	3.0
ND2676-10	1.086	3.0	3.5	1.5	2.5
NDC6084C-2	1.090	4.0	3.5	1.5	4.0
NDC6116-3	1.080	4.5	3.5	2.0	4.0
NDC6135-1	1.079	4.0	3.5	1.5	4.0
NDTX4930-5	1.092	3.5	4.0	2.5	3.0
VC1002-1	1.068	5.0	5.0	3.0	2.5
VC1002-3	1.090	5.0	4.5	2.0	3.5
Atlantic	1.099	4.0	4.0	2.5	3.5
Chipeta	1.090	4.5	5.0	2.5	2.5

¹ Chip color was rated using the Snack Food Association 1-5 scale. Ratings of ≤ 2.0 are acceptable.

Colorado Table 8. Yield, grade, tuber shape, and skin type for Advanced and Western Regional Red/Specialty Trial clones - 2000.

Clone	Yield (Cwt/A)					Tuber Shape & Skin Type ¹
	Total	US #1			<4 oz	
		Total	%	>10 oz		
CO86218-2	428	361	84.4	120	63	R,R
CO89097-2	458	391	85.1	124	50	Ov,R
CO93037-6	512	363	70.5	81	134	R,R
CO94019-1	391	325	83.1	82	65	Ov,R
CO94065-2	436	317	72.2	40	113	R,R
CO94165-3	472	342	72.3	56	122	Ov,P/P
CO94183-1	385	286	74.4	24	92	Ov,R/R
DT6063-1R	447	396	88.5	111	41	Ov,R
NDC6174-1	396	267	67.3	19	122	Ov,R
NDC6184-3	337	202	59.5	8	131	R,R
Norland-DR	419	378	90.1	139	34	R,R
Red LaSoda	493	438	88.7	252	30	Ov,R
Sangre-S10	485	427	88.2	190	52	R,R
TX1523-1	359	329	91.6	126	29	R,Ru/Y
VC0967-2	355	288	81.5	49	65	Ov,R/Y
VC0967-5	485	423	87.2	148	58	Ob,R/Y
Yukon Gold	361	322	89.3	116	33	Ov,W/Y
Mean	425	344	80.8	99	73	----
LSD ² (0.05)	66	70	6.7	44	22	----

¹ Tuber shape & skin type: R=round; Ov=oval; Ob=oblong; R=red; Ru/Y=russet with yellow flesh; P/P=purple with purple flesh; R/R=red with red flesh; R/Y=red with yellow flesh; W/Y=white with yellow flesh.

² LSD=least significant difference.

Colorado Table 9. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Western Regional Red/Specialty Trial clones - 2000.

Clone	Blackspot Index ¹			%	Dormancy (Days) ³	Enzymatic Browning ⁴
	Bud End	Stem End	Average	Weight Loss ²		
CO86218-2	3.9	4.3	4.1	4.3	91	2.2
CO89097-2	3.5	2.7	3.1	4.7	70	3.4
CO93037-6	2.6	1.8	2.2	4.0	119	3.2
CO94019-1	2.2	2.1	2.2	4.0	105	1.8
CO94065-2	2.7	3.6	3.2	4.4	119	3.6
CO94165-3	---	---	---	3.5	77	---
CO94183-1	2.3	2.0	2.2	5.1	77	---
DT6063-1R	5.0	4.6	4.8	4.2	77	4.0
NDC6174-1	3.3	4.4	3.9	8.4	63	2.8
NDC6184-3	3.4	3.5	3.5	7.3	44	2.6
Norland-DR	1.7	3.6	2.7	7.4	51	3.0
Red LaSoda	3.3	1.9	2.6	3.4	70	2.0
Sangre-S10	3.2	3.8	3.5	3.1	91	2.6
TX1523-1	4.3	2.9	3.6	4.0	63	5.0
VC0967-2	3.7	4.2	4.0	4.2	77	4.2
VC0967-5	4.2	3.8	4.0	2.9	119	4.8
Yukon Gold	3.9	2.8	3.4	3.0	91	4.6

¹ Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

² Tubers were stored at 45F for 91 days.

³ Days from harvest to first visible growth. Tubers were stored at 45F.

⁴ Degree of darkening rated at 60 minutes after slicing fresh lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Colorado Table 10. Summary comparison of advanced selections and named cultivars for yield, grade, maturity, specific gravity, and grade defects - 2000.

Clone	Usage ¹	Loc x Years	Total Yield (Cwt/A)	% US #1	Vine Maturity ²	Specific Gravity	% External Defects ³	% Hollow Heart ⁴
Russets								
CO85026-4	FM	11	375	89.1	3.6	1.085	3.5	0.0
AC87084-3	FM/Fry	8	509	89.2	3.4	1.093	2.8	0.3
AC87079-3	FM	6	434	81.9	2.8	1.092	1.6	2.2
AC87138-4	FM/Fry	6	483	78.1	3.3	1.088	3.7	0.7
AC89536-5	FM	5	504	82.8	3.2	1.084	3.1	0.2
AC91014-2	FM/Fry	4	407	77.6	3.0	1.091	2.6	1.5
Centennial Russet	FM	35	294	77.4	3.0	1.081	0.8	0.3
Keystone Russet	FM	13	465	88.8	3.1	1.079	1.5	0.0
Russet Norkotah	FM	34	346	84.1	1.8	1.077	2.0	0.4
Russet Nugget	FM/Fry	35	409	80.5	3.8	1.093	1.7	0.2
Silverton Russet	FM/Fry	13	391	85.4	3.0	1.080	1.5	0.3
Chippers								
BC0894-2	Chip	10	388	83.9	2.2	1.081	1.1	0.0
AC87340-2	Chip	6	475	79.2	3.3	1.084	1.0	0.3
AC89653-3	Chip	5	518	76.1	3.1	1.091	0.6	0.2
Atlantic	Chip	16	432	87.6	3.2	1.097	2.2	4.1
Chipeta	Chip	17	496	82.6	3.4	1.092	5.4	0.5
Reds								
CO86218-2	FM	10	414	82.3	3.0	1.076	1.6	0.2
DT6063-1R	FM	7	460	86.8	2.9	1.082	3.0	0.4
CO89097-2	FM	6	492	82.9	2.9	1.082	2.7	0.3
Sangre	FM	19	453	85.5	2.9	1.075	1.6	1.0

¹ FM=fresh market; Fry=french fry; FM/Fry indicates a dual purpose clone.

² Vine maturity: 1=very early; 2=early; 3=medium; 4=late; 5=very late.

³ Includes defects such as misshapen, second growth, growth crack, and green.

⁴ Based on tubers greater than 10 ounces.

Florida

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Introduction

This work is part of a statewide project developed
to evaluate advanced potato clones and potato
cultivars for potential use by the Florida potato
industry.

Methods

Crops in the tri-county area around Hastings,
Florida are grown in 60-foot wide beds consisting
of sixteen rows. The rows are raised with a
between row spacing of 40 inches (center to
center). The soil at the field site is classified as
Ellzey fine sand (sandy, siliceous, hyperthermic
Arenic Ochraqualf; sand 90-95%, < 2.5% clay, <
5% silt). An impervious layer of clay underlies the
soil at a depth of 3 to 5 ft. The soil is irrigated with
seepage irrigation. The irrigation water moves
across the clay layer and seeps upward into the
crop root zone. The water table is controlled by the
flow of water into irrigation ditches spaced
between beds. The potato beds are irrigated
continuously over the season except after a rain
event. Raised rows are used to facilitate drainage
during rain events. All crops in this experiment
were produced on this system of land and irrigation
management.

Trials were conducted at the Hastings Research and
Education Center's Yelvington Farm in Hastings,
FL. Potato seed pieces were hand cut and planted
with a cup planter on eight inch within row
spacing. Following standard production practices,
potatoes were planted into beds following a
sorghum/sudan grass summer cover crop (*Sorghum
bicolor* (L.) Moench x *S. arundinaceum* (Desv.)
Stapf var. SX17, Dekalb Genetics Corporation,
Dekalb, IL). The cover crop was disked into the
potato beds in September 1999. Potato beds were
fumigated with 1,3-dichloropropene (Telone II,
Dow Chemical, Indianapolis, IN, 58 L/ha) in early
January 2000.

All variety tests except the Early Line Evaluation
were planted in replicated, single row, 20 ft plots
unless otherwise noted. The Early Line Evaluation
was planted on replicated, single row, 10 ft plots.
Seed pieces were cut to an approximate size of 2.5
oz prior to planting. The potato rows were hilled
after plant emergence. Metribuzin (Lexone DF, 20
oz a.i./acre) was broadcast on the bed at hilling.

Fertilizer (1200 lb/acre 14-2-12 granular) was
incorporated into the beds prior to planting. An
additional 700 lb/acre of 14-2-12 was side-dressed
five weeks after planting.

Plots were harvested with a single-row commercial
potato digger. Potatoes were graded using
commercial grading equipment. Tubers were
washed and culls removed and weighed. The
remaining potatoes were separated into five size
classes and weighed. A 20-tuber sample was
randomly chosen from each plot and used to
calculate specific gravities. After gravities were
calculated, the sample was rated for appearance
characteristics and sliced into quarters to rate for
internal problems.

Results

Rainfall for the growing season was considerably
less than normal. Plant growth was generally very
vigorous due to warm temperatures and irrigation.
Late blight pressure was heavy in the area and an
intense spray schedule was maintained over the
season.

Data from the trials are summarized in Tables 1-3.
The tables are divided into two parts, the first (a)
detailing the potato production, tuber size
distribution and specific gravity. The second table
of each set (b) describes the external and internal
tuber characteristics.

Acknowledgements

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The continued support of the North Florida Grower's Exchange is greatly appreciated.

Florida Table 1a. Red potato variety trial results.

Potato Clone	Total Yield cwt/A	Market. Yield ¹ cwt/A	Size Distribution by Class (%) ²					Size Distribution (%)		Specific Gravity	Rated Tuber Appearance
			Distribution by Class (%) ²					Distribution (%)			
			1	2	3	4	5	2 to 5	3 to 5		
All Red	316 b-d ³	285 a-d	6	65	27	2	0	94	29	1.062 g-i	Good
Caribe	278 d-h	253 d-g	4	54	34	8	0	96	42	1.078 a	Fair-Good
Cherry Red (USDA)	255 f-j	240 e-i	3	39	48	10	0	97	58	1.076 a	Fair-Poor
Cherry Red	232 i-k	210 h-l	4	43	39	14	0	96	53	1.076 a	Fair-Good
Chieftain (USDA)	342 ab	317 ab	3	29	44	24	0	97	68	1.063 f-h	Fair-Poor
Chieftain	336 ab	304 a-c	3	40	48	8	0	97	57	1.064 e-h	Fair
La Rouge	317 b-d	277 b-e	6	44	32	18	0	94	50	1.064 d-g	Fair
Norland	232 i-k	201 i-l	7	60	25	8	0	93	34	1.064e-g	Fair-Poor
Norland, Red	271 e-i	210 h-l	7	61	26	5	0	93	31	1.062 g-i	Fair-Poor
Norland, Dark Red	239 g-k	212 g-l	8	64	23	4	0	92	27	1.061 g-i	Fair
Norland, Super Red	214 jk	183 jk	9	52	30	9	1	91	40	1.054 k	Fair-Poor
Pontiac	293 c-f	253 d-f	5	43	34	18	0	95	52	1.061 hi	Fair-Poor
Red Cloud	248 g-k	219 f-k	4	47	38	11	0	96	50	1.068 b-d	Fair-Poor
Red La Soda (USDA)	326 a-c	296 a-c	4	36	40	18	1	96	59	1.060 ij	Fair-Poor
Red La Soda	281 d-g	244 d-h	4	39	35	21	0	96	57	1.063 f-l	Fair-Poor

Florida Table 1a. Red potato variety trial results (continued).

Potato Clone	Total Yield cwt/A	Market. Yield cwt/A	Size					Specific Gravity	Rated Tuber Appearance		
			Distribution by Class (%)								
			1	2	3	4	5				
Reddale	360 a	318 a	2	25	38	34	1	98	73	1.063 f-i	Fair-Poor
Redsen (USDA)	145 l	108 m	20	70	10	1	0	80	10	1.063 f-i	Fair-Good
	79 m	55 n	30	61	7	2	0	70	9	1.057 jk	Fair-Good
Red Ruby	272 e-i	240 e-i	5	63	26	5	0	95	32	1.056 k	Fair
Rideau	328 a-c	299 a-c	3	31	34	31	1	97	66	1.066 d-f	Fair-Poor
B0984-1	256 f-i	225 f-i	6	38	33	23	0	94	56	1.069 bc	Fair-Good
B1145-2	245 g-k	208 h-l	11	59	20	10	0	89	30	1.062 g-i	Fair
B1529-1	212 k	179 kl	7	60	28	4	0	93	29	1.071 b	Fair-Good
B1758-3	310 b-e	274 c-e	7	50	38	5	0	93	43	1.068 b-d	Fair-Poor
B1758-4	304 b-e	273 c-e	5	51	36	8	0	95	44	1.069 bc	Fair-Poor
B1763-4	302 b-e	275 c-e	4	42	42	12	0	96	54	1.078 a	Fair
B1768-10	212 k	171 l	16	68	15	1	0	84	15	1.078 a	Fair
B1768-20	252 f-k	210 h-l	14	76	10	0	0	86	10	1.071 b	Fair-Good

¹Marketable Yield: size classes 2 to 4.

²Size Classes: 1 = < 1 7/8" (B); 2 = 1 7/8 to 2 1/2"; 3 = 2 1/2 to 3 1/4"; 4 = 3 1/4 to 4"; 5 = > 4"

³Means separated within columns with Waller-Duncan mean separation test at $P = 0.05$.

Florida Table 1b. Red potato variety trial results.

Planted: 2/15/2000															
Harvested: 5/31/2000															
Potato Clone	Total Yield		Market Yield ¹ cwt/A	Plant Characteristics ³		Tuber Characteristics ³				Internal Defects ⁴					
	Yield cwt/A	Maturity		SC	ST	TS	ED	APP	HH	INT	CRS	BR			
All Red	316 b-d ²		285 a-d	5	2	7	5	5	7	0	0.5	0	0		
Caribe	278 d-h		253 d-g	5	1	7	4	5	6	0	0	0	0		
Cherry Red (USDA)	255 f-j		240 e-i	5	2	6	3	5	5	0.5	0	0	0		
Cherry Red	232 i-k		210 h-l	5	2	7	4	6	6	0.3	0	0	0		
Chieftain (USDA)	342 ab		317 ab	6	2	6	3	5	5	0	0.3	0	0		
Chieftain	336 ab		304 a-c	6	2	7	3	5	5	0	0.3	0	0		
La Rouge	317 b-d		277 b-e	5	2	7	3	5	5	0	0.5	0	0		
Norland	232 i-k		201 i-l	4	2	6	2	6	4	0	0.5	0	0		
Norland, Red	271 e-i		210 h-l	3	2	7	3	6	5	0.3	0	0	0		
Norland, Dark Red	239 g-k		212 g-l	4	2	7	4	6	6	0	0.3	0	0		
Norland, Super Red	214 jk		183 jk	2	2	8	2	6	5	1.5	0.5	0	0.5		
Pontiac	293 c-f		253 d-f	5	2	7	2	4	4	0.3	0.3	0	0		
Red Cloud	248 g-k		219 f-k	6	2	6	3	6	6	0	0.3	0	0		
Red La Soda (USDA)	326 a-c		296 a-c	5	2	7	3	5	5	0.5	0.5	0	0		
Red La Soda	281 d-g		244 d-h	4	2	8	3	5	5	0	0	0	0.3		

Florida Table 1b. Red potato variety trial results (continued).

Potato Clone	Total		Market Yield cwt/A	Plant Characteristics		Tuber Characteristics					Internal Defects			
	Yield cwt/A	Maturity		SC	ST	TS	ED	APP	HH	INT	CRS	BR		
Reddale	360 a	5	318 a	2	7	3	5	5	0.3	0.3	0	0		
Redsen (USDA)	145 l	3	108 m	2	7	2	7	7	0	0	0	0		
Redsen	79 m	2	55 n	2	8	3	6	7	0	1.0	0	0		
Red Ruby	272 e-i	5	240 e-i	2	8	4	6	6	0	0	0	0		
Rideau	328 a-c	5	299 a-c	2	6	3	6	5	0	0	0	0		
B0984-1	256 f-i	4	225 f-i	2	7	3	6	6	0	0.5	0	0		
B1145-2	245 g-k	2	208 h-l	2	6	2	5	5	0	0	0	0		
B1529-1	212 k	4	179 kl	1	7	4	3	7	0	0	0	0		
B1758-3	310 b-e	4	274 c-e	2	7	3	5	5	0	1.5	0	0		
B1758-4	304 b-e	5	273 c-e	2	6	2	5	4	0	0.8	0	0		
B1763-4	302 b-e	4	275 c-e	1	6	3	6	6	0	0.3	0	0		
B1768-10	212 k	4	171 l	2	6	2	5	5	0	0	0	0		
B1768-20	252 f-k	4	210 h-l	2	6	2	6	6	0	0.3	0	0		

¹Marketable Yield: size classes 2 to 4.

²Means separated within columns with Waller-Duncan mean separation test at $P = 0.05$.

³Plant and tuber characteristics based on standard NE-184 rating codes. SC=skin color, ST=skin texture, TS=tuber shape, ED=eye depth, APP=appearance.

⁴Mean number of tubers with symptoms from four, 20 tubers sample. HH=hollow heart, INT=internal necrosis, CRS=corky ringspot, BR=brown rot.

Florida Table 2a. Round white potato variety trial results.

Planted:	2/15-16/2000										
Harvested:	6/1/2000										
Potato Clone	Total Yield cwt/A	Market. Yield ¹ cwt/A	Size					Size		Specific Gravity	Rated Tuber Appearance
			Distribution by Class (%) ²					Distribution (%)			
	1	2	3	4	5	2 to 5	3 to 5				
Adora ³	184	155	13	74	10	0	0	84	10	1.060	Good-Excel.
Arnova	429 b ⁴	362 b	4	34	41	20	1	96	62	1.056 x	Fair
Atlantic (USDA)	377 c-g	329 b-h	2	16	28	51	4	98	82	1.078 b-e	Fair
Atlantic	394 b-e	345 b-e	3	24	28	45	1	97	74	1.076 d-h	Fair
Columbo	335 f-l	289 f-l	5	38	46	11	1	95	58	1.058 x	Fair
Katahdin	304 j-o	274 i-m	2	27	42	27	1	98	70	1.071 j-o	Fair
Kennebec (USDA)	365 d-i	327 b-i	2	20	37	40	2	98	79	1.072 j-o	Fair
Kennebec	388 b-e	341 b-f	3	30	41	23	3	97	67	1.070 m-q	Poor
La Chipper	291 k-p	240 l-q	6	35	27	29	3	94	59	1.070 m-q	Fair
Maranca	496 a	445 a	3	35	39	22	0	97	61	1.052 y	Fair-Poor
Pungo	353 e-j	292 e-l	3	29	31	35	2	97	68	1.066 s-v	Fair-Poor
Sebago	325 h-m	279 h-m	3	39	46	12	0	97	58	1.065 t-w	Fair
Snowden	371 d-h	336 b-g	2	26	39	31	1	98	71	1.079 bc	Poor
Superior (USDA)	228 q-u	209 o-t	5	53	36	6	0	95	42	1.078 b-e	Fair-Good
Superior	229 q-u	202 p-u	6	63	26	5	0	94	30	1.078 b-f	Fair-Good
AF1615-1	355 e-i	309 c-j	4	44	36	16	0	97	52	1.066 r-v	Fair-Good
AF1753-16	425 bc	368 b	4	43	39	13	2	96	53	1.066 r-v	Poor
B0178-34	292 k-p	254 k-p	5	26	35	33	1	95	69	1.076 c-g	Fair
B0564-8	290 k-p	253 k-p	6	41	33	20	1	94	53	1.073 g-m	Fair-Good
B0564-9	384 b-f	321 b-i	4	25	30	36	5	96	71	1.075 e-h	Fair

Florida Table 2a. Round white potato variety trial results (continued).

Potato Clone	Total Yield cwt/A	Market Yield ¹ cwt/A	Size					Size		Specific Gravity	Rated Tuber Appearance
			Distribution by Class (%) ²					Distribution (%)			
			1	2	3	4	5	2 to 5	3 to 5		
B0718-3	213 r-u	194 q-u	6	51	37	7	0	94	44	1.062 w	Poor
B0766-3	330 g-l	287 g-l	3	21	28	45	3	97	76	1.073 g-m	Poor
B0767-2	201 t-v	187 r-u	4	51	35	10	0	96	45	1.064 u-w	Poor
B1316-5	285 l-p	260 j-o	1	21	44	34	0	99	78	1.081 ab	Good
B1332-19	303 j-o	278 h-m	2	30	42	25	1	98	68	1.075 e-i	Fair-Good
B1339-2	255 o-s	216 n-t	9	62	26	3	0	91	29	1.084 a	Fair
B1409-2	412 b-d	356 bc	4	35	40	19	2	96	61	1.075 f-j	Fair-Poor
B1425-9	383 b-f	334 b-g	4	38	37	21	0	96	58	1.081 ab	Fair-Poor
B1497-33	290 k-p	253 k-p	6	55	29	10	0	94	39	1.070 n-r	Fair-Poor
B1598-4	247 p-t	216 n-t	6	51	33	10	0	94	43	1.067 q-u	Fair-Good
B1709-6	327 h-m	281 h-m	3	23	38	35	1	97	74	1.069 o-s	Fair
B1752-5	259 o-r	206 p-u	7	38	34	21	0	93	55	1.072 i-o	Fair
B1783-11	216 r-u	177 s-v	11	51	26	12	0	89	37	1.075 g-k	Fair
B1783-24	250 p-t	215 n-t	7	63	29	1	0	93	30	1.074 g-l	Fair-Poor
B1785-6	189 u-w	156 u-w	9	80	10	1	0	91	11	1.070 l-p	Poor
B1786-14	197 u-w	172 s-v	7	61	27	5	0	93	32	1.070 n-r	Fair
B1787-18	208 s-u	164- t-w	8	59	33	0	0	92	33	1.069 n-s	Fair-Good
B1801-3	296 k-p	233 m-r	6	30	34	28	2	94	64	1.062 w	Fair
B1801-6	317 i-n	267 j-n	3	25	35	36	0	97	71	1.063 vw	Fair
B1806-8	357 e-i	324 b-i	2	39	46	13	0	98	59	1.072 h-n	Fair-Poor

Florida Table 2a. Round white potato variety trial results (continued).

Potato Clone	Total Yield cwt/A	Market Yield ¹ cwt/A	Size Distribution by Class (%) ²					Size Distribution (%)		Specific Gravity	Rated Tuber Appearance
			1	2	3	4	5	2 to 5	3 to 5		
B1826-1	350 e-j	303 d-k	5	39	28	28	0	95	56	1.065 t-w	Fair
B1856-10	391 b-e	355 b-d	4	36	39	19	2	96	60	1.073 g-m	Poor
B1872-1	153 vw	125 vw	16	76	8	0	0	84	8	1.080 b	Fair
B1872-8	149 w	116 w	18	76	6	0	0	82	6	1.068 p-t	Fair
B1873-4	334 f-l	297 e-k	5	57	35	4	0	95	38	1.075 f-j	Fair
B1873-6	278 m-q	233 m-r	9	50	35	6	0	91	41	1.079 b-d	Fair-Poor
B1880-4	336 f-k	290 f-l	5	31	31	31	2	95	64	1.067 q-u	Fair
B1922-3	210 r-u	174 s-v	13	71	13	3	0	87	16	1.075 e-i	Fair-Good
B1927-14	268 n-q	217 n-s	6	49	31	15	0	94	45	1.065 t-w	Fair
CK87-1008	380 b-f	338 b-g	2	39	36	23	0	98	59	1.058 x	Fair

¹Marketable Yield: size classes 2 to 4.²Size Classes: 1 = < 1 7/8" (B); 2 = 1 7/8 to 2 1/2"; 3 = 2 1/2 to 3 1/4"; 4 = 3 1/4 to 4"; 5 = > 4"³Variety not included in statistical analysis.⁴Means separated within columns with Waller-Duncan mean separation test at $P = 0.05$.

Florida Table 2b. Round white potato variety trial results.

Planted:	2/15-16/2000											
Harvested:	6/1/2000											
Potato Clone	Total Yield cwt/A	Market Yield ¹ cwt/A	Plant Characteristics ⁴ Maturity	Tuber Characteristics ⁴ SC ST TS ED APP				Internal Defects ⁵ HH INT CRS BR				
Adora ²	184	155	6	6	8	4	6	8	0	0	0.3	0
Arnova	429 b ³	362 b	6	8	7	6	7	4	0	0	0	0
Atlantic (USDA)	377 c-g	329 b-h	7	7	5	4	5	5	2.5	2.5	0	0
Atlantic	394 b-e	345 b-e	6	7	6	3	6	6	3.0	0.3	0	0
Columbo	335 f-l	289 f-l	5	7	6	4	6	5	0	0.3	0	0
Katahdin	304 j-o	274 i-m	5	7	6	5	6	5	0	0	0	0
Kennebec (USDA)	365 d-i	327 b-i	7	8	7	6	6	5	0	0	0	0
Kennebec	388 b-e	341 b-f	6	8	7	4	6	6	0	0	0	0
La Chipper	291 k-p	240 l-q	6	8	8	3	5	7	0	0	0	0
Maranca	496 a	445 a	7	8	7	5	6	5	0.8	0	0	0
Pungo	353 e-j	292 e-l	4	7	6	4	5	5	1.3	0.3	0	0
Sebago	325 h-m	279 h-m	7	8	7	4	6	6	0	0	0	0
Snowden	371 d-h	336 b-g	6	6	5	4	4	4	0.5	0	0	0
Superior (USDA)	228 q-u	209 o-t	5	7	6	2	5	6	1.3	0	0	0
Superior	229 q-u	202 p-u	4	8	6	3	4	5	0.3	0	0	0
AF1615-1	355 e-i	309 c-j	6	7	7	2	7	7	0.3	0	0	0
AF1753-16	425 bc	368 b	6	6	4	5	8	3	0.3	0.3	0	0
B0178-34	292 k-p	254 k-p	5	7	6	3	7	5	3.0	0	0	0
B0564-8	290 k-p	253 k-p	5	6	5	2	6	6	0.3	0	0	0
B0564-9	384 b-f	321 b-i	5	6	5	3	6	5	0.5	0	0	0

Florida Table 2b. Round white potato variety trial results (continued).

Potato Clone	Total		Market Yield cwt/A	Plant Characteristics		Tuber Characteristics				Internal Defects			
	Yield cwt/A			Maturity	SC	ST	TS	ED	APP	HH	INT	CRS	BR
B0718-3	213 r-u		194 q-u	9	8	6	5	8	4	0	0	0	0
B0766-3	330 g-l		287 g-l	6	7	5	3	7	4	0.5	0	0	0
B0767-2	201 t-v		187 r-u	9	4	2	7	4	4	0	0	0	0
B1316-5	285 l-p		260 j-o	6	8	7	4	7	7	2.3	0.3	0	0
B1322-19	303 j-o		278 h-m	6	8	7	3	6	7	2.5	0.3	0	0
B1339-2	255 o-s		216 n-t	4	8	6	3	6	6	0.5	0	0	0
B1409-2	412 b-d		356 bc	6	4	3	5	6	5	0	0	0	0
B1425-9	383 b-f		334 b-g	5	7	6	4	6	4	0.3	0	0	0
B1497-33	290 k-p		253 k-p	4	8	6	2	6	5	0	0	0	0
B1598-4	247 p-t		216 n-t	4	7	7	4	6	6	0	0	0	0
B1709-6	327 h-m		281 h-m	7	7	5	3	6	5	0.8	0	0	0
B1752-5	259 o-r		206 p-u	4	8	6	4	5	5	1.5	0.5	0	0
B1783-11	216 r-u		177 s-v	4	7	7	2	7	6	7.8	0	0	0
B1783-24	250 p-t		215 n-t	4	7	7	3	7	5	0	0	0	0
B1785-6	189 u-w		156 u-w	5	7	8	4	7	4	0	0	0	0
B1786-14	197 u-w		172 s-v	3	7	6	2	6	5	0	0.3	0	0
B1787-18	208 s-u		164- t-w	4	7	6	3	7	5	0	0.8	0	0
B1801-3	296 k-p		233 m-r	5	8	7	4	6	5	0.5	0.8	0	0
B1801-6	317 i-n		267 j-n	5	7	7	3	6	6	1.0	0	0	0
B1806-8	357 e-i		324 b-i	5	7	5	3	6	5	1.5	0.3	0	0

Florida Table 2b. Round white potato variety trial results (continued).

Florida 1able 2b. Round white potato variety trial results (continued).														
Potato Clone	Total		Market Yield cwt/A	Plant Characteristics		Tuber Characteristics					Internal Defects			
	Yield cwt/A			Maturity		SC	ST	TS	ED	APP	HH	INT	CRS	BR
B1826-1	350 e-j		303 d-k	5		7	5	4	6	5	0	0.3	0	0
B1856-10	391 b-e		355 b-d	7		5	4	5	7	4	2.3	0.8	0	0
B1872-1	153 vw		125 vw	3		8	7	2	8	6	0	0	0	0
B1872-8	149 w		116 w	2		7	7	3	7	5	0.5	0	0	0
B1873-4	334 f-l		297 e-k	6		8	7	4	7	5	0.1	0.1	0	0
B1873-6	278 m-q		233 m-r	5		7	5	2	7	4	0.3	0	0	0
B1880-4	336 f-k		290 f-l	6		8	5	3	6	5	1.3	0.5	0	0
B1922-3	210 r-u		174 s-v	5		7	8	3	6	7	0	0	0	0
B1927-14	268 n-q		217 n-s	4		8	8	2	6	6	0	0	0	0
CK87-1008	380 b-f		338 b-g	5		8	8	5	7	5	0	0	0	0

¹Marketable Yield: size classes 2 to 4.

²Variety not included in statistical analysis.

³Means separated within columns with Waller-Duncan mean separation test at $P = 0.05$.

⁴Plant and tuber characteristics based on standard NE-184 rating codes. SC=skin color, ST=skin texture, TS=tuber shape, ED=eye depth, APP=appearance.

⁵Mean number of tubers with symptoms from four, 20 tubers sample. HH=hollow heart, INT=internal necrosis, CRS=corky ringspot, BR=brown rot.

Florida Table 3a. Early line potato variety trial results.

Potato Clone	Planted: Harvested:	2/17/2000 5/30/2000	Total Yield cwt/A	Market. Yield ¹ cwt/A	Size										Specific Gravity	Rated Tuber Appearance
					Distribution by Class (%) ²					Distribution (%)						
					1	2	3	4	5	2 to 5	3 to 5					
Atlantic			365 a ³	317 a	2	16	28	52	3	98	82	1.078 c	Fair-Poor			
Kennebec			306 b	289 ab	2	24	30	44	0	98	74	1.072 d-f	Fair			
La Chipper			272 b-d	231 d-h	5	34	30	26	4	95	61	1.070 d-g	Fair-Good			
Sebago			293 bc	270 bc	3	32	40	26	0	97	65	1.069 e-h	Fair-Poor			
Superior			210 g-i	180 jk	10	59	29	2	0	90	31	1.073 d	Fair-Poor			
AF2079-7			202 hi	169 k	6	50	39	6	0	94	45	1.066 h	Fair-Good			
AF2079-9			235 e-h	220 f-i	2	44	47	7	0	98	54	1.070 d-g	Poor			
AF2081-3			235 e-h	1993 i-k	9	65	25	2	0	91	27	1.073 de	Fair-Poor			
AF2082-3			246 d-f	222 e-i	3	39	40	18	0	97	58	1.067 gh	Very Poor			
AF2082-7			245 d-g	231 d-h	5	46	36	13	0	95	49	1.069 f-h	Fair-Poor			
AF2082-10			223 f-i	197 h-k	5	28	30	35	2	95	66	1.067 h	Poor			
AF2082-12			194 i	186 i-k	2	21	47	31	0	98	77	1.073 d	Fair -Poor			
AF2082-18			278 b-d	268 b-d	2	22	44	32	0	98	76	1.069 f-h	Fair-Poor			
AF2086-18			280 b-d	258 b-e	3	32	42	24	0	97	66	1.067 gh	Fair			
AF2135-1			292 bc	254 b-f	3	34	35	29	0	97	64	1.069 f-h	Fair			

Florida Table 3a. Early line potato variety trial results (continued).

Potato Clone	Total Yield cwt/A	Market Yield cwt/A	Size Distribution by Class (%)					Size Distribution (%)		Specific Gravity	Rated Tuber Appearance
			1	2	3	4	5	2 to 5	3 to 5		
ARSW96-584-1	264 c-e	215 g-j	8	52	33	8	0	92	41	1.069 gh	Fair
ARSW95-4654-1	266 c-e	239 c-g	5	45	40	10	0	95	50	1.079 c	Fair-Poor
BD113-3 ⁴	50 k	18 m	64	36	0	0	0	36	0	1.086 b	Fair
BD132-2 ⁴	156 j	123 l	21	69	9	1	0	79	10	1.087 b	Poor
BD146-4 ⁴	35 k	17 m	51	49	0	0	0	49	0	1.098 a	Very Poor

¹Marketable Yield: size classes 2 to 4.

²Size Classes: 1 = < 1 7/8" (B); 2 = 1 7/8 to 2 1/2"; 3 = 2 1/2 to 3 1/4"; 4 = 3 1/4 to 4"; 5 = > 4"

³Means separated within columns with Waller-Duncan mean separation test at $P = 0.05$.

⁴Lines selected for small tubers for fresh market.

Florida Table 3b. Early line potato variety trial results.

Planted: Harvested:	2/17/2000 5/30/2000	Total Yield cwt/A	Market Yield ¹ cwt/A	Plant Characteristics ³		Tuber Characteristics ³					Internal Defects ⁴						
				Maturity	SC	ST	TS	ED	APP	HH	INT	CRS	BR				
Potato Clone																	
Atlantic		365 a	317 a	7	7	6	3	6	6	6	0.8	0	0	0	0	0	0
Kennebec		306 b	289 ab	6	8	7	4	6	6	6	0	0	0	0	0	0	0
La Chipper		272 b-d	231 d-h	6	8	8	3	5	7	7	0	0	0	0	0	0	0
Sebago		293 bc	270 bc	7	8	7	4	6	6	6	0	0	0	0	0	0	0
Superior		210 g-i	180 jk	4	8	6	2	6	6	6	1.3	1.3	0	0	0	0	0
AF2079-7		202 hi	169 k	5	8	7	2	6	6	6	0.5	0	0	0	0	0	0
AF2079-9		235 e-h	220 f-i	5	7	7	3	7	7	5	0.8	0	0	0	0	0	0
AF2081-3		235 e-h	1993 i-k	5	7	7	3	7	7	5	0.3	0	0	0	0	0	0
AF2082-3		246 d-f	222 e-i	6	6	5	2	6	6	3	0	0	0	0	0	0	0
AF2082-7		245 d-g	231 d-h	5	8	6	2	5	5	5	0	0	0	0	0	0	0
AF2082-10		223 f-i	197 h-k	6	7	6	3	6	6	4	2.8	0	0	0	0	0	0
AF2082-12		194 i	186 i-k	5	7	6	3	6	6	6	0	0	0	0	0	0	0
AF2082-18		278 b-d	268 b-d	6	8	7	4	5	6	6	0	0	0	0	0	0	0
AF2086-18		280 b-d	258 b-e	5	8	8	5	6	6	6	0	0	0	0	0	0	0
AF2135-1		292 bc	254 b-f	5	8	7	5	6	6	6	0	0	0	0	0	0	0

Florida Table 3b. Early line potato variety trial results (continued).

Florida Table 3b. Early line potato variety trial results (continued).														
Potato Clone	Total Yield		Market Yield cwt/A	Plant Characteristics		Tuber Characteristics				Internal Defects				
	Yield cwt/A			Maturity		SC	ST	TS	ED	APP	HH	INT	CRS	BR
ARSW96-584-1	264 c-e		215 g-j	5		7	7	4	6	6	0	0	0	0
ARSW95-4654-1	266 c-e		239 c-g	7		8	7	3	6	5	0	0	0	0
BD113-34	50 k		18 m	9		7	8	4	4	3	0	0	0	0
BD132-2	156 j		123 l	7		7	7	4	6	3	0	0	0	0
BD146-4	35 k		17 m	8		5	5	3	7	3	0	0	0	0

¹Marketable Yield: size classes 2 to 4.

²Means separated within columns with Waller-Duncan mean separation test at $P = 0.05$.

³Plant and tuber characteristics based on standard NE-184 rating codes. SC=skin color, ST=skin texture, TS=tuber shape, ED=eye depth, APP=appearance.

⁴Mean number of tubers with symptoms from four, 20 tubers sample. HH=hollow heart, INT=internal necrosis, CRS=corky ringspot, BR=brown rot.

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Evaluations on breeding selections in 2000 included variety trials, herbicide screening, culinary tests, and disease screening. Market types included in the evaluations were long russets (or white processing types), chippers, and reds.

Variety Releases

IdaRose (A82705-1R), a cross of Sangre and TXA218-7, and Gem Russet (A8495-1), a cross of A77182-1 and Russet Norkotah, were released in 2000. Release applications are in progress and should be completed in 2001 for Ivory Crisp (NDO1496), a cross of ND292-1 and A77268-1, and Alturas (A82360-7), a cross of A77182-1 and A75188-3.

Replicated Variety Trials

Nine potato variety trials were conducted in 2000 in farmers' fields at Rexburg and Shelley, and Experiment Station sites at Aberdeen and Kimberly, Idaho (Tables 1-9). Rexburg is located in the high elevation area of eastern Idaho and has the coolest and shortest growing season (120 days between potato planting and harvest) of the four sites. Shelley and Aberdeen are located along the Snake River in Eastern Idaho, are slightly warmer and have growing seasons of approximately 130 days. Kimberly is located in South-central Idaho and has a 140-day growing season for potatoes.

The trials were planted between April 25 and May 17 and harvested between September 26 and September 29. Crop management practices were typical of those used in the region in which the trial was located. All trials were planted using a randomized complete block design with either four or six replications. Plots consisted of single rows, twenty feet long.

Following harvest, tubers were weighed, graded, and sampled for internal quality evaluations. Depending on the specific objectives of the trial, samples were taken for evaluation of blackspot and shatter bruise susceptibility, presence of internal defects, specific gravity, french fry color, and dry-matter yield.

A fairly average May and June, conducive to good emergence and early growth, typified the 2000 growing season. South-central and eastern Idaho had similar growing seasons with high temperatures (>90° F) from mid-July through mid-August. A five-day hot spell also occurred in mid-September (84-96° F). Western Idaho experienced a normal spring, but the summer was characterized by extended periods of hot weather, with 14 consecutive days over 100° F in mid-July. In general, tuber quality in the trials was average to below average due to the high temperatures.

Five of the nine trials were conducted to evaluate dual purpose russet or long-white, processing selections (Tables 1-5). Two were conducted to evaluate chipping selections (Tables 6-7), and two to evaluate selections for high dry-matter yield with intent to identify clones superior for dehydration purposes (Tables 8-9).

The trials grown in Rexburg and Shelley included standard and new varieties as well as the most advanced breeding selections from the Aberdeen program (Tables 1-2). In the Rexburg trial, Russet Burbank and entry A84118-3 were dropped from the analysis due to poor seed quality (PVY, soft rot) which greatly affected stand and yield and does not give an accurate representation of these entries' performance. The highest yielding line in the Rexburg trial was Bannock Russet, while the lowest was AKM94026-7, a round white, cold chipping selection. In the Rexburg trial, Bannock also had the highest percentage of US No. 1's and the highest percentage of >12 oz tubers. Specific gravity for most of the clones in this trial was similar to that of Ranger Russet (1.085), except for AKM94026-7, which had a specific gravity of 1.100. All selections at Rexburg fried equal to or better than Ranger Russet with several having USDA grade scores < 1 out of 45° F storage.

In the Shelley trial, poor seed quality (PVY and soft rot) affected yields of Gem Russet, Russet Burbank, and A90586-11, but data is still presented. A82360-7 (Alturas) was the highest yielding line in the Shelley trial, while Gem Russet was the lowest. As in the Rexburg trial, Bannock Russet had the highest percentage of US No. 1 tubers and Russet Burbank

had the lowest. A82360-7 had the highest specific gravity and CalRed had the lowest. Gem Russet, Bannock Russet, A82360-7, A84118-3, A8893-1, A9014-2, A92584-3BB, Chipeta and AKM94026-7 had fries scores lower than Russet Burbank and USDA fry grade scores < 1 out of 45° F storage. A90586-11 had a high blackspot bruise rating.

The Tri-state trial represents the stage of evaluation beyond the advanced yield trials and includes locations in Oregon and Washington. In the Idaho location of this trial, all selections had yields similar to or higher than Russet Burbank (Table 3). AO92017-6 had the highest yield, higher percentage of US No. 1's than Russet Burbank and good fry color out of 45° F storage. COO93031-3 had the lowest yield and lowest specific gravity and blackspot bruise potential equal to Ranger Russet. A92303-7 had good yield and the highest percentage of US No. 1's, but also showed blackspot bruise potential. AO89128-4.2 had good yield, high percentage of US No. 1's, high specific gravity and very good fry color out of 45° F storage and relatively good fry color out of 40° F storage. A89384-10 had the most hollow heart in the trial.

Advanced russet selections were grown at Aberdeen and Kimberly (Tables 4-5). A93157-6LS had very high yields at both locations and a very high percentage of US No. 1's in addition to having very good fry color both out of 40 and 45° F storage at both locations. It's one draw back seems to be susceptibility to blackspot bruising. Other lines performing well enough to advance to the 2001 Tri-State trial include A91186-2, A92030-4, A92030-5, A9304-3, A9305-10, and A93116-3.

In the Idaho location of the Western Regional chipping trial, Chipeta, one of the check varieties had the highest yield, followed by A90490-1 (Table 6). A91790-13 had high specific gravity and chipped well out of 40° F storage and showed good reconditioning ability. A90467-14 had the highest specific gravity in the trial and had the second best fry color after reconditioning. AC89653-3 had a very high percentage of small tubers despite having the second highest total yield in the trial after A90490-1.

In the advanced selection chipping trial, A91790-13 and A94326-5 had good combinations of yield, size, specific gravity, and chip color (Table 7). Both of these also showed exceptional potential as cold chippers. COA95070-8 also showed good cold

chipping potential and had high specific gravity, but had lower yield than Chipeta, although comparable to Dakota Pearl and NorValley.

In the high dry-matter trials, A92294-6 had the highest dry matter yield and specific gravity at both locations (Tables 8-9). A92294-6 also produced acceptable fry color after storage. A91814-5 had the best fry color after storage at both 40 and 45° F at both locations. All the clones had higher dry matter yield and total tuber yield than Russet Burbank and Ranger Russet at both locations. The superior dry matter yields were the result of a combination of high tuber yield and high tuber solids.

Sensory Evaluations

Five advanced breeding selections were compared to Russet Burbank in blind sensory evaluations of baked tubers. The evaluations were conducted at the Bingham County Extension Office by University of Idaho home economists. Tubers were baked in a convection oven and rated by trained panelists for color, texture, flavor, and overall quality. The evaluations were conducted twice, once within a month of harvest and again after five months of storage at 40°F.

In the fall evaluation, A9014-2 was rated significantly lower for color than Russet Burbank. (Table 10). A9014-2 and A90586-11 were rated lower for color and texture than Russet Burbank. A9045-7 was rated higher in flavor and overall appeal than Russet Burbank. In the spring evaluation, all the lines were similar to Russet Burbank for all characteristics. Generally, the unreleased selections appeared to be similar to Russet Burbank for baked quality.

Metribuzin Screening

Eleven varieties and twenty-nine breeding selections (mainly those entered into northwest and western regional variety trials) were tested for response to the herbicide metribuzin (Sencor®). Estimations were made for percent foliar injury and measurements taken for vigor following a postemergence (8-10 inch plants) application of metribuzin at the rate of 1.0 lb a.i./A. This rate is slightly above the highest allowable rate. In some cases, pre-emergence applications of metribuzin at low rates were made either alone or in combination with other herbicides for weed control in the check plots. Yield loss for

each clone, as a result of the application, was predicted using a model that incorporates injury and vigor as inputs. Each variety or selection was assigned a relative resistance score based on yield loss in comparison with varieties of known response.

The application was made in the morning when wind conditions were favorable using a hand held boom. Environmental conditions were not particularly conducive to injury with warm, clear days prior to the date of application. The level of injury observed was high for susceptible varieties such as Shepody (Table 11).

Most of the russet and long-white selections were moderately resistant to very resistant to injury except for Shepody and CalWhite.

The chipping and round white selections were moderately to very resistant, with all the selections ranking more resistant than Atlantic.

Of the red lines, NDO4323-4R was susceptible to injury, CO89097-2 was moderately susceptible to injury. NDO4588-5R was very resistant to injury. In general, the red class of clones was most susceptible to injury.

Late Blight Screening

Arrangements were made with Al Mosley to screen breeding material for late blight resistance in Corvallis, Oregon. Artificial inoculations were used to augment natural infection. Disease response was measured as a rating value that represented the percentage of defoliation. In addition, the amount of tuber rot before and after storage was documented.

A wide range of responses to late blight was found among the clones screened (Table 12). The selection with the highest resistance to foliar blight was A90586-11. All other selections showed > 90% injury. Tuber infection was generally not very severe. A8792-1, A90586-11 and A89384-10 did not show any tuber infection at all. Atlantic, A9014-2, A9045-7, AO92252-1, AO92007-2, AC89653-3 and A92303-7 had tuber infections of 5% or less.

Reaction to Field Diseases

Potato varieties in the regional and tri-state trials were evaluated for resistance to verticillium wilt, early blight and common scab (Table 13). These evaluations were done using natural exposure

conditions. Ratings were made using a 0 to 9 scale with 0 equal to no observed symptoms and 9 equal to greater than 90% symptoms observed on the plants.

Among the russet or long white selections, A90586-11, AC87079-3, AO89128-4.2, A82360-7 and Bannock Russet showed some resistance to verticillium wilt. Among the chipping varieties, A90467-14, A90490-1, A91790-13 and AO91812-1 showed some resistance.

With respect to early blight, all entries showed some level of infection. The Russet Norkotah strains TXNS102 and TXNS296 as well as Russet Norkotah had the highest levels of early blight infection.

Environmental conditions in 2000 were very conducive to common scab infection. A92303-7 showed the highest infection of the russetted varieties and NDTX4930-5W had the highest infection for the chipping varieties. Several varieties showed no common scab symptoms this year including: A8792-1, A8893-1, AC89536-5, ATX9202-3RU, A98348-10, AO89128-4.1, AO92007-2, AO92017-6, COO93031-3 and A7961-1 as well as Bannock Russet and Russet Burbank.

Summary of Promising Breeding Selections

Bannock Russet: The experimental designation for this variety was A81473-2. It was released in 1999. It is an oblong russet with a very late and disease resistant vine. It is the result of a cross between A75175-1 (Targhee x A67490-3) and A75188-3. Bannock Russet was grown at Rexburg and Shelley in 2000 (Tables 1,2,3). In each case, it performed very well for yield and quality in comparison with Russet Burbank.

A82360-7: This oval, lightly russetted clone was developed specifically for dehydration purposes and selected for maximum dry matter yield. It is the result of a cross between A77182-1 (Atlantic x Lemhi Russet) and A75188-3. It is planned for release as Alturas in 2001. A82360-7 has shown potential for dehydration, as well as french fry production, although its short shape may limit its potential for this market. It had good fry color out of 40 and 45° F storage from both Rexburg and Shelley trials (Tables 1-2). A82360-7 was the highest yielding clone in Shelley (Table 2) and the second highest yielding clone at Rexburg (Table 1).

IdaRose: This dark red clone was released in 2000. The experimental designation for this variety was A82705-1R. It is high yielding and has good storage characteristics. It is one of the few selections tested that competes for yield in Idaho with Red LaSoda. It is the result of a cross between Sangre and TXA218-7 (NDTX9580-6R x Viking). It was grown in the Shelley trial (Table 2) and it responded comparably to the other red varieties, CalRed and Cherry Red. It is currently being evaluated in commercial production situations.

Gem Russet: This clone was released in 2000. The experimental designation for this variety was A8595-1. It has long tubers that are moderately russeted and is very similar in appearance to Russet Norkotah. It is the result of a cross between A77182-1 (Atlantic x Lemhi Russet) and Russet Norkotah. In 2000, it was included in trials at Rexburg and Shelley, but poor seed quality affected its performance (Table 2). In previous years, it outperformed Russet Burbank in nearly every yield and quality category. It produces very good fry color following cold storage. Gem Russet is a PVY carrier, similar to its male parent, Russet Norkotah.

A84118-3: This long, russet clone is the result of a cross between A77236-6 and TND329-1Russ. It has excellent tuber type and appearance. In past years it has produced only moderate yields, but a high percentage of marketable tubers. In 2000, it was included in the Rexburg and Shelley trials (Tables 1-2). Poor seed quality affected its performance at the Rexburg location. In Shelley it out-yielded Russet Burbank and produced tubers with high specific gravity and good fry color. In past years this clone has shown moderate levels of resistance to foliar late blight, and high levels of resistance to tuber blight.

A90586-11: This clone came from the late blight resistance breeding program. It is a cross between the Polish seedling KSA195-90 (PG-429 x Duet) and Ranger Russet. It has long shape and white skin. In 2000 it was grown at Shelley (Table 2). Poor seed quality may have affected its performance at this location. In previous years, it has shown excellent yield potential and high specific gravity. Its fry colors were similar to those of Russet Burbank. It was similar to Ranger Russet in susceptibility to blackspot bruise. A90586-11 is very resistant to metribuzin injury (Table 11). In the Corvallis late blight tests, it was the best clone for resistance to foliar late blight (Table 12).

NDO1496-1: This round, white chipping clone is an Oregon selection of a North Dakota seedling. It is the result of a cross between ND292-1 and A77268-1 (Lemhi Russet x Norchip). It was dropped from the Oregon program, but has since been picked up by the Idaho program due to its very good cold chipping characteristics and is scheduled for release in 2001 as Ivory Crisp. In 2000, it was grown in one trial at Aberdeen where it had lower yield than Chipeta (Table 7). Chip color was better than any of the standard varieties and was the best in the trial after long-term storage at 40°F. NDO1496-1 has shown the ability to chip acceptably from cold storage and to recondition well.

A8893-1: This is a medium to early maturing selection with oblong, russet tubers. It resulted from a cross of A7816-14 and NorKing Russet. It was selected at the Parma research station for its ability to produce good early yields and maintain adequate processing quality under stress conditions. In 2000, it was grown in trials at Shelley and Rexburg (Tables 1-2). It out-performed the check varieties in nearly all yield and quality parameters. Its fry color was similar to that of the check varieties. In the baked potato evaluations it was largely indistinguishable from Russet Burbank (Table 10).

A9014-2: This selection is medium maturing with heavy russet skin and oblong shape. It is the result of a cross between Gem Russet and A8341-5. It has shown the ability to produce tubers with excellent appearance. A9014-2 has high specific gravity and is one of the best selections to date for fry color from 40° F storage. In 2000, it was grown in trials at Rexburg and Shelley (Tables 1-2). It performed very well at both locations compared to the standard varieties. In the baked sensory evaluations it was indistinguishable from Russet Burbank for flavor (Table 10).

A9045-7: This selection is medium maturing with long tuber type and light to medium russet skin. It resulted from a cross of Ranger Russet and Russet Legend. It was selected at Parma for early yield and good processing quality under stress conditions. In past years it has shown good resistance to sugar ends. In 2000, it was grown in trials at Rexburg and Shelley (Tables 1-2). It was the second highest yielding variety at both locations. It also showed excellent resistance to all internal defects and was similar in blackspot bruise susceptibility to Russet Burbank. In the baked potato sensory evaluation it

was rated higher than Russet Burbank in flavor and overall appeal in the at-harvest evaluation and similar to Russet Burbank after storage (Table 10)

IDAHO TABLE 1. Performance of russet potato selections on the farm of Gary Summers at Rexburg, Idaho, in 2000.

Clone	Total Yield	U.S. No. 1's			Culls &		Specific Gravity	Hollow Heart/ ¹		Blackspot ² Bruise	Shatter ³ Bruise	Fry 40 ⁴ Color	Fry 45 ⁴ Color
		Yield	%	> 12 oz.	6 to 12 oz.	< 4 oz.		Brown Center	%				
	----cwt/acre----								----				
RANGER RUSSET	349	248	71	15	41	9	20	1.085	0	2.9	2.9	3.3	1.7
BANNOCK RUSSET	407	348	86	44	36	6	8	1.083	0	2.0	2.9	2.3	1.0
A82360-7	374	297	79	18	45	14	6	1.085	0	2.4	3.0	1.8	0.5
A8893-1	313	249	80	10	45	16	5	1.082	0	2.2	2.8	2.7	0.7
A9014-2	327	248	76	4	50	17	7	1.086	2	1.9	2.8	1.5	0.3
A9045-7	354	288	81	25	46	8	10	1.088	0	2.3	2.8	3.2	1.8
CHIPETA	308	262	85	25	50	7	8	1.086	0	2.0	2.5	1.4	0.1
AKM94026-7	303	213	70	2	42	23	6	1.100	2	1.9	3.3	0.9	0.1
Mean	305	234	75	15	42	16	10	1.086	0	2.2	2.9	2.3	0.8
LSD (.05)	42	48						0.003		0.3	0.3	0.5	0.4
LSD (.01)	56	64						0.004		0.4	0.3	0.7	0.5

¹ Hollow heart/brown center was measured by cutting tubers > 12 oz.

² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.

³ Shatter bruise measured using a 1-5 scale where 1 = resistant, 5 = susceptible.

⁴ USDA fry grade score with lower score indicating lighter color; potatoes stored at 40° or 45°F.

IDAHO TABLE 2. Performance of russet potato selections on the farm of Reed Searle at Shelley, Idaho, in 2000.

Clone	Total Yield	U.S. No. 1's				Culls &		Specific Gravity	Hollow Heart/ ¹ Brown Center	Blackspot ² Bruise	Shatter ³ Bruise	Fry 40 ⁴		Fry 45 ⁴	
		Yield	%	> 12 oz.	6 to 12 oz.	< 4 oz.	U.S. No.2					Color	Color		
														---	---
---cwt/acre---															
RUSSET BURBANK*	242	141	58	10	33	19	22	1.078	0	3.2	2.8	3.2	1.4		
GEM RUSSET*	162	110	68	9	36	26	6	1.086	0	3.3	2.5	2.0	0.3		
BANNOCK RUSSET	369	328	89	43	38	5	6	1.089	0	2.2	3.2	2.8	0.7		
A82360-7	421	321	76	18	39	16	8	1.100	0	2.5	2.7	1.4	0.3		
A84118-3	329	237	72	18	39	15	13	1.099	0	2.4	2.7	2.8	0.8		
A8893-1	358	284	79	22	42	11	9	1.081	2	2.9	2.8	3.3	0.5		
A9014-2	342	291	85	26	46	7	8	1.085	0	2.6	2.7	1.1	0.1		
A9045-7	407	342	84	41	35	5	11	1.097	0	3.1	2.4	3.4	1.6		
A90586-11*	203	124	61	33	22	12	27	1.093	0	3.9	2.3	3.5	1.3		
A92584-3BB	366	238	65	7	35	27	8	1.081	0	2.7	2.4	1.7	0.1		
YUKON GOLD	329	262	80	18	47	12	8	1.083	2	2.6	2.8	3.2	1.9		
CHIPETA	398	313	79	32	35	9	15	1.096	0	2.4	2.5	1.6	0.2		
AKM94026-7	315	206	65	3	36	29	6	1.095	2	2.4	3.2	0.8	0.1		
IDAROSE	315	258	82	26	42	16	2	1.079	0	2.7	3.4	4.0	2.5		
CHERRY RED	320	270	84	21	50	11	5	1.084	3	3.4	2.5	3.8	1.1		
CAL RED	327	231	71	2	43	27	3	1.075	0	2.9	3.0	4.0	1.6		
Mean	325	247	75	20	39	15	10	1.080	1	2.8	2.7	2.7	0.9		
LSD (.05)	52	44						0.004		0.4	0.2	0.5	0.3		
LSD (.01)	69	58						0.005		0.5	0.3	0.6	0.4		

¹ Hollow heart/brown center was measured by cutting tubers > 12 oz.² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.³ Shatter bruise measured using a 1-5 scale where 1 = resistant, 5 = susceptible.⁴ USDA fry grade score with lower score indicating lighter color; potatoes stored at 40° or 45°F.

* Poor seed quality (PVY and soft rot) may have affected yields.

IDAHO TABLE 3. Performance of russet potato selections in the Idaho location of the Tri-State (Idaho, Oregon, Washington) variety trial grown on the Aberdeen Experiment Station in 2000.

Clone	Total Yield	U.S. No. 1's		Culls &		Specific Gravity	Hollow Heart/ ¹		Blackspot ² Bruise	Shatter ³ Bruise	Fry 40 ⁴		Fry 45 ⁴	
		Yield	%	> 12 oz.	< 4 oz.		U.S. No.2	Brown			Center	Color	Color	
---cwt/acre---														
-----%-----														
-----%----														
RUSSET BURBANK	428	239	56	14	32	9	35	1.079	8	3.4	3.0	3.7	0.9	
RANGER RUSSET	404	295	73	44	25	2	25	1.089	0	3.9	2.4	3.5	1.4	
A89384-10	453	316	70	33	28	8	23	1.088	28	2.5	2.4	3.5	1.8	
A92303-7	459	403	88	31	44	7	5	1.086	3	3.9	2.3	2.9	1.5	
AO89128-4.1	431	332	77	16	48	9	14	1.090	5	3.5	3.3	2.8	0.2	
AO89128-4.2	504	404	80	25	45	7	12	1.096	0	2.9	2.6	2.2	0.5	
AO92007-2	513	434	85	34	40	6	9	1.081	3	3.4	2.4	3.5	1.3	
AO92017-6	535	396	74	38	31	3	23	1.087	0	3.3	2.1	2.6	0.4	
COO93031-3	370	303	82	47	28	7	11	1.078	8	3.9	3.0	3.6	1.5	
Mean	455	347	76	31	36	6	17	1.086	6	3.4	2.6	3.2	1.0	
LSD (.05)	88	90						0.005		0.4	0.3	0.6	0.5	
LSD (.01)	119	122						0.007		0.5	0.5	0.8	0.7	

¹ Hollow heart/brown center was measured by cutting tubers > 12 oz.

² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.

³ Shatter bruise measured using a 1-5 scale where 1 = resistant, 5 = susceptible.

⁴ USDA fry grade score with lower score indicating lighter color; potatoes stored at 40° or 45°F.

IDAHO TABLE 4. Performance of advanced yield selections grown at Aberdeen, Idaho, Experiment Station in 2000.

Clone	Total Yield	U.S. No. 1's			Culls &		Specific Gravity	Hollow Heart/ ¹		Blackspot ²	Merit ³	Fry 40 ⁴		Fry 45 ⁴	
		Yield	%	> 12 oz.	< 4 oz.	U.S. No.2		Brown Center	Bruise			Score	Color	Color	
-----cwt/acre-----%-----%-----%-----															
Shepody	369	314	85	47	30	5	10	1.084	0	2.2	2.1	4.0	2.8		
Ranger Russet	366	329	90	23	55	7	3	1.095	0	3.2	2.6	2.9	1.5		
Russet Burbank	336	249	74	18	40	14	12	1.078	3	2.6	2.9	2.9	1.6		
A89384-10	419	353	84	38	41	5	11	1.090	35	1.7	2.6	2.9	1.5		
A91186-2	355	331	93	13	62	5	2	1.085	0	2.7	3.0	1.8	0.9		
A92030-4	320	291	91	6	68	8	1	1.094	0	2.7	3.3	2.9	1.2		
A92030-5	325	288	89	26	51	8	3	1.088	8	3.3	2.8	3.4	1.9		
A92303-7	446	397	89	11	58	10	1	1.082	0	2.3	2.3	1.6	1.7		
A91576-2	479	419	87	25	49	7	5	1.097	53	1.7	3.1	2.4	1.7		
A9304-3	412	393	95	35	52	4	1	1.087	3	3.7	4.1	2.4	0.7		
A9305-10	480	443	92	41	44	5	3	1.088	0	2.8	3.1	1.9	0.5		
A9305-5	366	348	95	42	47	3	2	1.091	13	2.1	3.1	2.1	0.9		
A9308-2	277	252	91	40	44	6	3	1.097	5	2.3	2.8	2.1	1.1		
A9324-4	351	328	94	36	51	2	4	1.093	5	1.7	3.4	0.8	0.5		
A93116-3	297	267	90	52	32	3	7	1.086	5	1.2	3.0	3.0	1.5		
A93157-6LS	441	417	95	25	61	4	1	1.095	16	3.1	3.9	0.3	0.2		
Mean	377	339	90	30	49	6	4	1.089	9	2.4	3.0	2.3	1.3		
LSD (.05)	48							0.004		0.5	0.5	0.9	0.6		
LSD (.01)	64							0.006		0.6	0.7	1.2	0.7		

¹ Hollow heart/brown center was measured by cutting tubers >12 oz.² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.³ Merit Score is similar to a breeder's preference rating and based on overall appearance and size of field run potatoes, 1-5 scale with 5 = best.⁴ USDA fry grade score with lower score indicating lighter color; potatoes stored at 40° or 45°F.

IDAHO TABLE 5. Performance of advanced yield selections grown at Kimberly, Idaho, Experiment Station in 2000.

Clone	Total Yield	U.S. No. 1's				Culls & U.S. No.2		Specific Gravity	Hollow Heart/ ¹ Brown Center	Blackspot ² Bruise	Merit ³ Score	Fry 40 ⁴		Fry 45 ⁴	
		Yield	%	> 12 oz.	6 to 12 oz.	< 4 oz.	%					Color	Color		
														-----cwt/acre-----	

Shepody	426	281	66	34	24	6	28	1.075	0	3.1	1.8	3.8	2.8	2.8	
Ranger Russet	423	300	71	43	24	5	24	1.085	0	3.7	2.8	3.0	2.3	2.3	
Russet Burbank	401	148	37	11	18	12	51	1.072	0	2.8	1.1	3.4	2.3	2.3	
A89384-10	367	204	56	17	26	9	35	1.085	9	3.0	1.8	3.2	1.6	1.6	
A91186-2	346	306	88	26	48	6	6	1.079	0	3.0	2.6	2.8	1.9	1.9	
A92030-4	328	213	65	19	36	8	26	1.087	0	3.9	1.8	3.4	1.2	1.2	
A92030-5	369	277	75	34	33	7	18	1.080	0	3.9	2.4	3.0	2.1	2.1	
A92303-7	472	386	82	25	43	11	7	1.080	0	3.1	2.9	2.6	1.5	1.5	
A91576-2	497	332	67	29	29	10	23	1.087	5	3.0	2.5	3.3	2.4	2.4	
A9304-3	355	248	70	29	31	8	23	1.076	3	3.9	2.4	2.9	1.3	1.3	
A9305-10	483	345	71	33	31	8	20	1.081	0	3.7	2.0	2.7	1.6	1.6	
A9305-5	338	215	64	29	25	9	27	1.080	3	2.3	1.6	2.5	1.8	1.8	
A9308-2	330	232	70	25	36	6	24	1.088	0	2.9	1.8	2.7	1.8	1.8	
A9324-4	342	272	80	33	36	6	15	1.092	0	2.5	2.4	2.8	1.8	1.8	
A93116-3	433	299	69	38	25	5	26	1.078	0	1.5	2.8	3.5	2.6	2.6	
A93157-6LS	577	467	81	50	25	4	15	1.089	8	4.2	3.8	1.7	0.4	0.4	
Mean	405	283	69	30	31	7	23	1.082	2	3.1	2.3	2.9	1.8	1.8	
LSD (.05)	117							0.005		NS					
LSD (.01)	156							0.007		NS					

¹ Hollow heart/brown center was measured by cutting tubers > 12 oz.² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.³ Merit Score is similar to a breeder's preference rating and based on overall appearance and size of field run potatoes, 1-5 scale with 5 = best.⁴ USDA fry grade score with lower score indicating lighter color; potatoes stored at 40° or 45°F.

IDAHO TABLE 6. Performance of chipping selections in the Idaho location of the Western Regional Chipping Trial grown on the Aberdeen, Idaho, Experiment Station in 2000.

Clone	Total Yield	U.S. No. 1's				Culls & U.S. No.2		Specific Gravity	Hollow Heart/ ¹ Brown Center	Blackspot ²		Shatter ³ Bruise	Chip 40 ⁴		Chip 50 ⁴		Recon ⁵ Color
		Yield	%	> 12 oz.	6 to 12 oz.	< 4 oz.	%			Bruise	Color		Color				
														-----cwt/acre----	-----%-----	----	
ATLANTIC	382	297	78	15	46	15	7	1.095	8	2.3	2.7	3.7	1.4	3.4			
CHIPETA	640	514	80	47	30	3	16	1.085	0	3.0	2.5	4.0	1.3	2.8			
A90467-14	536	439	82	19	48	11	7	1.098	5	2.3	2.4	2.4	1.1	1.7			
A90490-1	623	496	80	38	34	6	14	1.085	10	2.6	3.0	3.8	1.2	2.5			
A91790-13	560	386	69	6	35	27	4	1.094	0	2.6	2.4	1.9	1.0	1.0			
AC87340-2	474	353	74	9	42	22	4	1.084	3	2.0	2.6	2.8	1.0	2.4			
AC89653-3	582	382	66	3	32	30	4	1.089	8	2.1	2.8	2.8	1.3	3.0			
AO91812-1	473	401	85	35	37	8	8	1.093	0	2.9	2.4	3.4	1.3	2.7			
NDTX4930-5W	473	379	80	26	42	12	8	1.084	5	3.1	3.1	3.2	1.1	2.2			
Mean	527	405	77	22	38	15	8	1.090	4	2.5	2.6	3.1	1.2	2.4			
LSD (.05)	85	86						0.003		0.4	0.2	0.7	0.3	0.6			
LSD (.01)	114	117						0.004		0.6	0.3	1.0	0.4	0.9			

¹ Hollow heart/brown center was measured by cutting tubers > 12 oz.

² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.

³ Shatter bruise measured using a 1-5 scale where 1 = resistant, 5 = susceptible.

⁴ Chip color rated using SFA color chart, 0-5 scale with lower score indicating lighter color; potatoes stored at 40° or 50°F.

⁵ Tubers stored at 40°F for 7 weeks then reconditioned to 65°F for 3 weeks.

IDAHO TABLE 7. Performance of advanced chipping potato selections grown on the Aberdeen, Idaho, Experiment Station in 2000.

Clone	Total Yield	U.S. No. 1's				Culls &		Specific Gravity	Hollow Heart/ ¹ Brown Center	Blackspot ² Bruise	Merit ³ Score	Dec 45 ⁴		Feb 45 ⁴		Feb 40 ⁴	
		Yield	%	> 12 oz.	4 to 12 oz.	< 4 oz.	U.S. No.2					Color	Color	Color	Color		
																-----cwt/acre----	-----%-----
A90467-14	462	421	91	44	47	6	3	1.103	20	1.5	3.4	2.3	1.5		1.8		
A90490-1	524	481	92	31	61	7	1	1.087	8	2.0	3.8	2.4	1.3		3.9		
A91790-13	491	379	77	4	73	23	0	1.097	7	2.1	3.3	1.8	1.3		1.1		
A94288-11	218	189	87	25	61	11	3	1.096	63	2.2	2.6	2.2	1.8		2.9		
A94288-14	481	454	94	43	52	5	1	1.091	15	2.2	2.9	2.7	2.0		4.0		
A94326-5	409	347	85	10	74	15	1	1.102	0	2.3	2.9	1.8	1.3		1.3		
B0766-3	385	320	83	14	70	16	1	1.097	17	3.2	3.4	2.2	1.5		2.8		
COA95070-8	294	262	89	18	71	10	1	1.100	0	1.7	2.4	1.6	1.1		1.4		
Dakota Pearl	249	164	66	4	61	34	0	1.084	13	1.1	2.8	2.0	1.1		1.9		
NorValley	287	236	82	13	69	18	0	1.078	14	2.3	2.8	2.5	1.3		2.1		
NDO1496-1	361	309	86	12	74	14	1	1.094	8	2.4	2.4	1.6	1.3		2.0		
Chipeta	456	431	95	54	41	3	2	1.084	0	2.2	3.0	2.4	1.9		3.6		
Mean	385	333	86	23	63	13	1	1.093	14	2.1	2.9	2.1	1.4		2.4		
LSD (.05)	51							0.006		0.4	0.7	0.5	0.4		0.6		
LSD (.01)	70							0.008		0.5	0.9	0.7	0.6		0.8		

¹ Hollow heart/brown center was measured by cutting tubers >12 oz.

² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.

³ Merit Score is similar to a breeder's preference rating and based on overall appearance and size of field run potatoes, 1-5 scale with 5 = best.

⁴ Chip color rated using SFA color chart, 0-5 scale with lower score indicating lighter color; potatoes stored at 40° or 45°F.

IDAHO TABLE 8. Performance of advanced high dry matter selections grown on the Aberdeen, Idaho, Experiment Station in 2000.

Clone	Total Yield	U.S. No. 1's			Culls &		Specific Gravity	Hollow ¹ Heart	Blackspot ² Bruise	Dry ³ Matter	Fry 40 ⁴ Color	Fry 45 ⁴ Color
		Yield	%	> 12 oz.	< 4 oz.	U.S. No.2						
	----cwt/acre----			-----%				---%---		lb/A		
Shepody	369	314	85	47	30	5	10	0	2.2	7,950	4.0	2.8
Ranger Russet	366	329	90	23	55	7	3	0	3.2	8,733	2.9	1.5
Russet Burbank	336	249	74	18	40	14	12	3	2.6	6,897	2.9	1.6
A82360-7	526	405	77	21	44	9	14	0	2.4	11,726	1.5	0.5
A89219-7	513	493	96	66	26	2	2	10	3.1	12,058	2.0	0.7
A91814-5	501	369	74	4	43	22	5	0	2.3	11,920	0.5	0.1
A92294-6	586	506	86	12	57	8	6	0	2.3	14,277	1.1	0.6
Mean	457	381	83	27	42	10	7	2	3	10,509	2.1	1.1
LSD (.05)											0.9	0.6
LSD (.01)											1.2	0.7

¹ Hollow heart was measured by cutting tubers > 12 oz.² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.³ Dry Matter yield shown as pounds per Acre.⁴ USDA fry grade score with lower score indicating lighter color; potatoes stored at 40° or 45°F.

IDAHO TABLE 9. Performance of advanced high dry matter selections grown on the Kimberly, Idaho, Experiment Station in 2000.

Clone	Total Yield	U.S. No. 1's				Culls & U.S. No. 2		Specific Gravity	Hollow ¹ Heart	Blackspot ² Bruise	Dry ³ Matter	Fry 40 ⁴		Fry 45 ⁴ Color
		Yield	% ------%			< 4 oz.	U.S. No. 2					Color	100	
			> 12 oz.	6 to 12 oz.	------%									
	-----cwt/acre----								----		lb/A			
Shepody	426	281	66	34	24	6	28	1.075	0	3.1	8,476	3.8	2.8	
Ranger Russet	423	300	71	43	24	5	24	1.085	0	3.7	9,249	3.0	2.3	
Russet Burbank	401	148	37	11	18	12	51	1.072	0	2.8	7,758	3.4	2.3	
A82360-7	561	426	76	15	39	17	7	1.086	0	3.0	12,353	2.3	1.5	
A89219-7	544	462	85	54	26	4	11	1.085	3	3.9	11,893	3.1	2.0	
A91814-5	548	346	63	12	33	20	17	1.089	0	2.7	12,395	1.8	0.4	
A92294-6	547	364	67	15	40	13	20	1.094	0	3.4	12,983	2.5	1.1	
Mean	493	332	66	26	29	11	23	1.084	1.4	3.2	10,730	2.8	1.8	
LSD (.05)	83							0.005		0.7				
LSD (.01)	111							0.007		0.8				

¹ Hollow heart was measured by cutting tubers > 12 oz.

² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.

³ Dry Matter yield shown as pounds per Acre.

⁴ USDA fry grade score with lower score indicating lighter color; potatoes stored at 40° or 45°F.

IDAHO TABLE 10. Sensory evaluations of baked potatoes from breeding selections grown at Aberdeen, Idaho, in 2000.¹

Clone	At Harvest			After 5 Months of Storage (40° F)		
	Color	Texture	Flavor	Color	Texture	Flavor
Russet Burbank	6.8 a	6.2 ab	6.1 bc	6.4 a	5.7 a	5.6 a
A8893-1	6.8 ab	5.9 bc	6.0 bc	6.5 a	5.5 a	5.4 a
A9014-2	6.6 b	5.8 c	5.9 c	6.3 a	5.4 a	5.4 a
A0945-7	7.0 a	6.3 a	6.4 a	6.0 a	5.6 a	5.5 a
A90586-11	6.7 ab	5.9 c	5.9 c	6.3 a	5.4 a	5.5 a
AO87277-6	6.9 a	6.1 bc	6.2 ab	6.4 a	5.6 a	5.7 a

¹ Evaluations were made by trained panelists using double blind procedures. Approximately 100 tests were done on each clone.

Each baked potato was rated for color, texture, flavor, and overall appeal. Ratings were made using a 1-9 scale with 9 = best.

Means were separated using Duncan's Multiple Range Test, and means followed by the same letter are not significantly different.

IDAHO TABLE 11. Reaction of potato clones to the herbicide metribuzin (Sencor/Lexone) in 2000.¹

Clone	Plant Injury ² 21 Days Following Application	Predicted ³ Yield Reduction Due to Injury ²	Relative ⁴ Susceptibility to Injury
----- % -----			
<u>Russet and Long Whites</u>			
Russet Burbank	30	15	MR
Russet Norkotah	40	20	MR
Shepody	98	100	VS
A8792-1	8	0	VR
A8893-1	10	0	VR
A9014-2	20	3	VR
A9045-7	8	0	VR
A90586-11	15	0	VR
AC87079-3	18	1	VR
AC87138-4	5	0	VR
AC89536-5	15	0	VR
ATX9202-3RU	20	8	R
A89384-10	18	0	VR
A92303-7	33	14	MR
AO89128-4.1	23	6	R
AO89128-4.2	13	0	VR
AO92007-2	10	0	VR
AO92017-6	15	2	VR
COO93031-3	23	4	VR
CalWhite	80	56	S
Bannock Russet	23	8	R
Gem Russet	18	4	VR
<u>Chippers and Round Whites</u>			
Atlantic	73	45	S
A90467-14	8	0	VR
A90490-1	10	0	VR
A91790-13	15	1	VR
AC87340-2	38	18	MR
AC89653-3	35	17	MR
AO91812-1	25	13	MR
NDTX4930-5W	8	0	VR
TX1523-1RU/Y	25	5	VR
Yukon Gold	13	0	VR
<u>Reds</u>			
Dark Red Norland	28	7	R
Red LaSoda	40	22	MS
IdaRose	20	9	R
A92657-1R	35	16	MR
CO89097-2	35	21	MS
NDO4300-1R	33	12	MR
NDO4323-4R	53	32	S
NDO4588-5R	13	0	VR

¹ Metribuzin applied postemergence (8-12 inch plants) at a rate of 1.0 lb a.i./A (17.5gpa, 30 psi).² Plant injury was recorded as the percentage of foliage from average plant in each plot that showed typical metribuzin symptoms (chlorosis, necrosis, vein clearing, etc.)³ Predicted yield reduction is expressed as percent loss compared to untreated plots and was calculated using the following equation: Yield reduction = [1-(1.142 + 0.176 (Log (plant height treated/plant height untreated)))- 0.00796 (plant injury)] x 100.⁴ VR=very resistant, MR=moderately resistant, MS=moderately susceptible, S=susceptible, VS=very susceptible.

IDAHO TABLE 12. Response to late blight pressure at Corvallis, Oregon, 2000.

Entry	Foliar Rating ¹	% Tuber Infection ²	Severity Index ³
R. Burbank	9.0	18	4.5
Ranger R.	9.0	30	6.8
R. Norkotah	9.0	13	7.2
Shepody	9.0	15	5.0
A8792-1	9.0	0	0.0
A8893-1	9.0	20	6.7
A9014-2	9.0	3	2.5
A9045-7	9.0	5	2.0
A90586-11	5.5	0	0.0
AC87079-3	9.0	8	4.2
AC89536-5	9.0	13	6.2
ATX9202-3RU	9.0	28	7.2
PORTGNP3-138	9.0	15	6.0
PORTGS124-1	9.0	13	6.7
PORTGS129-1	9.0	30	6.2
TXNS102	9.0	20	6.0
TXNS296	9.0	28	7.0
AO89128-4.1	9.0	10	4.7
AO89128-4.2	9.0	28	6.7
AO92252-1	9.0	5	2.0
AO92007-2	9.0	3	2.2
AO92017-6	9.0	15	3.5
AO87277-6	9.0	20	5.7
COO93031-1	9.0	10	4.5
Dk. R. Norland	9.0	13	4.7
Red LaSoda	9.0	18	5.6
Yukon Gold	9.0	15	6.0
A92657-1R	9.0	13	5.0
CO89097-2	9.0	10	4.2
NDO4300-1R	9.0	8	4.0
NDO4323-2R	9.0	15	4.2
NDO4588-5R	9.0	8	4.5
TX1523-1RU/Y	9.0	10	6.0
Atlantic	9.0	3	3.0
Chipeta	9.0	23	5.6
A91790-13	9.0	23	7.0
A90490-1	9.0	25	7.2
AC87340-2	9.0	28	6.5
AC89653-3	9.0	5	3.0
AO91812-1	9.0	38	8.0
NDTX4930-5W	9.0	15	7.2
A90467-14	9.0	35	6.7
A92303-7	9.0	3	2.6
A89384-10	9.0	0	0.0
AC87138-4	9.0	8	3.2
Mean	8.9	14.8	4.8

¹ Ratings are percent leaf surface infected with late blight average of 4 reps: (1 = no foliar injury; 2 = 1-5%; 3 = 5-10%; 4 = 10-20%; 5 = 20-40%; 6 = 40-60%; 7 = 60-75%; 8 = 75-90%; 9 = 90-100% injury).

² Percent of late blight infected tubers based on 10 randomly selected tubers.

³ Decay Severity Index (includes secondary infection); 1 = Minor decay, 5 = moderate decay, 10 = severe decay.

IDAHO TABLE 13. Evaluation of potato cultivars and breeding selections for resistance to field diseases, at Aberdeen, Idaho, 2000.

Cultivar or Selection		Verticillium Wilt ¹	Early Blight ²	Common Scab ³
WESTERN REGIONAL TRIAL	A8792-1	2.7	4.8	0
	A8893-1	7.8	6.0	0
	A9014-2	4.7	6.3	2
	A9045-7	3.0	4.0	19
	A90586-11	1.3	3.5	50
	AC87079-3	1.2	2.3	48
	AC87138-4	2.9	3.9	13
	AC89536-5	5.3	5.5	0
	ATX9202-3RU	4.7	5.7	0
	TXNS102	8.2	8.0	2
	TXNS296	8.3	7.3	3
TRI STATE TRIAL	A98348-10	3.3	4.7	0
	A92303-7	4.5	5.2	77
	AO89128-4.1	7.7	6.8	0
	AO89128-4.2	1.5	4.2	7
	AO92007-2	5.8	6.0	0
	AO92017-6	4.8	4.7	0
REGIONAL CHIP TRIAL	COO93031-3	6.3	5.8	0
	A90467-14	1.0	2.8	6
	A90490-1	0.5	2.5	4
	A91790-13	0.8	3.3	40
	AC87340-2	2.7	5.7	40
	AC89653-3	5.0	5.8	17
	AO91812-1	0.3	2.0	34
MISCELLANEOUS ADVANCED SELECTIONS	NDTX4930-5W	6.0	5.5	70
	A82360-7	0.7	2.8	1
	A7961-1	5.2	4.7	0
NAMED VARIETIES	AO87277-6	6.7	5.0	48
	Atlantic	6.7	6.2	9
	Bannock Russet	0.3	2.5	0
	Ranger Russet	3.0	4.7	57
	Russet Burbank	7.7	5.7	0
	Russet Norkotah	8.7	7.5	8
	Shepody	5.7	5.8	19
	LSD (p=0.05)	1.5	1.7	16

¹ Verticillium wilt 0 to 9 scale: 0 = none; 9 = 90% stems dead of dying with typical Verticillium wilt symptoms.

² Early blight 0 to 9 scale: 0 = none; 9 = >90% leaflets with severe blight lesions or necrosis due to early blight.

³ Common scab: % tubers with greater than 10% of the surface area covered with common scab.

Maine

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Introduction: Potato variety trials were conducted at three locations in Maine as part of the NE-184 Regional Project (Development of New Potato Clones for Environmental and Economic Sustainability in the Northeast). Thirty-seven potato varieties and clones were tested at Aroostook Research Farm, Presque Isle, Maine. Twenty NE-184 varieties and lines were tested on a commercial farm in Exeter (central Maine), while 30 varieties and lines were tested on a commercial farm in St. Agatha (northern Maine). Additional trials of advanced selections (pre-regional trial entries) from the USDA-ARS program in Beltsville and the Maine Potato Breeding Program were conducted at the two commercial locations. The primary objective of all of the Maine trials is to determine performance, quality, and storage characteristics of promising potato clones and new varieties in Maine.

Methods: Single-row plots, 25 feet long, were utilized for the NE-184 trials. The plot length for the advanced selection trials was 20 feet. All trials were hand planted using randomized complete block designs and four replications. The seed piece spacing used for each line is listed in subsequent tables. Details of important management practices are presented in Maine Table 1. At the Presque Isle site the varieties were grouped so that separate tests could be vine-killed and harvested based on maturity classification. Remaining cultural practices were similar to those used on commercial farms in the area. Specific gravity was determined at harvest using the weight-in-air/weight-in-water method. Hollow heart ratings indicate the number of hollow tubers observed per 40 large tubers examined. Unless noted otherwise, chip color evaluations were conducted during December following storage at 50°F. Chips were fried at 350°F for three minutes and evaluated using an Agtron M35, calibrated with the black "0" disk = 0 and the white "90" disk = 90. Chips were crushed and reported values are means from four replicates per variety. Each sample was read three times with thorough mixing between readings.

Skinning and shatter bruise were measured soon after harvest. Approximately 10 lbs of tubers > 1 7/8" diameter were tumbled in a drum with three stones

for 1 minute at 15 rpm. Each tuber was then rated for percentage of the tuber surface affected by skinning or shatter bruise. The tubers were then placed in 45°F storage and rated for internal damage during February. An additional abrasive peel test was conducted on separate samples to determine biochemical aspects of black-spot bruise susceptibility (see Pavek *et al.*, APJ 62:511-517). Ten tubers per plot were warmed for 24 hours and then abrasively peeled for 30 seconds. Color was allowed to develop for 24 h and then individual tubers were rated for discoloration where 0=no discoloration and 5=severe discoloration.

Results:

Rainfall, General Growth, and Plant Stands. Rainfall by month and location is listed in Maine Table 2. The crop generally received a good supply of water from rainfall during 2000. The Presque Isle site had the lowest rainfall during June through August. Irrigation was applied at the Central Maine site to compensate for relatively low August rainfall. Plant growth was generally quite good at all three sites. Pest control practices were very effective. No late blight infection was observed in the 2000 trials.

NE-184 Regional Potato Variety Trials at Presque Isle, Exeter, and St. Agatha. Yield and quality results from these trials are summarized in the Eastern Regional Trial report and are presented earlier in this publication. Detailed results can be obtained from the authors.

French Fry Processing from the 1999 Aroostook Research Farm Test. French fry color and texture of 15 NE-184 lines were evaluated under simulated processing conditions (Maine Table 3). Gem Russet, Russet Legend, A81386-1, and A84118-3 produced french fries that were equal to Russet Burbank in quality. Texture scores for Gem Russet, Russet Legend, Shepody, A81386-1, A84118-3, A84180-8, A86102-6, and W1348Rus were statistically equal to those of Russet Burbank.

Aroostook Research Farm Small-Scale Storage Evaluations. Limited data on storage and processing characteristics were collected from 47 NE-184 varieties and clones during the 1999-2000 storage season (Maine Tables 4 and 5). Chip colors from 50°F storage in February were acceptable for many lines with anticipated chipping potential. Lines with outstanding chip color from 50°F February storage were: B0766-3, ND2676-10, and NY115.

MaineChip, ND2676-10, NY115, and W1313 produced good chip colors directly from 45°F storage; however, none of the lines produced good chips directly out of 38°F storage. Snowden reconditioned well from 38°F storage. Eva, B0766-3, and W1313 provided good chip colors through late April evaluations.

Chipping of samples from the Exeter site took place in March. Lines with particularly good color from 50°F storage were: Atlantic, Eva, Itasca, Keuka Gold, Snowden, B0766-3, ND2776-10, and NY115. ND2776-10 and NY115 produced the best chips from 45°F storage; however, the following lines reconditioned well from 45°F storage: Eva, Itasca, Keuka Gold, MaineChip, FL1533, FL1625, and ND2776-10.

Skinning and bruise test scores for the 1999 field season are presented in Maine Table 4. The following lines had particularly poor skinning scores: Atlantic, Itasca, Katahdin, Russet Legend, Russet Norkotah #3, Umatilla Russet, A81386-1, A84118-3, W1100R, W1101R, and W1348Rus. Dark Red Norland, Kennebec, Russet Legend, Umatilla Russet, A84180-8, AF1437-1, ND2776-10, W1100R, and W1313 had relatively high shatter bruise scores. Internal bruising problems were detected in Atlantic, Kennebec, B0766-3, W1100R, and W1313. Atlantic, Chieftain, Dark Red Norland, Keuka Gold, Lady Claire, Russet Legend, Umatilla Russet, Yukon Gold, A86102-6, NY115, and W1151Rus had fair black-spot bruise potential scores. Eva, Shepody, AF1615-1, ND2776-10, W1099Rus, and W1313 had good scores. All other lines showed high black-spot bruise potential.

Eva, Gem Russet, Russet Burbank, A84118-3, A84180-8, and A86102-6 required at least 200 days to reach the one-half-inch sprout stage. Accord, Cycloon, Lady Christyl, and NorDonna reached the one-half-inch sprout stage in less than 130 days. Selections with very low weight loss (<3.5%) from 38°F storage were: Accent, Lady Christyl, Superior, Shepody, and B0766-3. Selections with very low weight loss (7% or less) from 50°F storage were: Eva, Gem Russet, Russet Burbank, Russet Legend, Russet Norkotah, Russet Norkotah #3, Russet Norkotah #8, Shepody, Yukon Gold, A81386-1, A84118-3, A84180-8, and A86102-6. Selections with high weight loss (15% or more) from 50°F storage were: Atlantic, Cycloon, Dark Red Norland, Lady Christyl, MaineChip, Snowden, AF1615-1, W1099Rus, W1100R, and W1101R.

Central Maine Advanced Breeding Lines. AF1668-60 and AF1921-9 were significantly lower yielding than all standards (Maine Table 6). B0178-34 and B1327-6 produced the highest U.S.#1 yields of the test lines. Specific gravities of AF1845-7, AF1921-4, AF1921-9, and FL1533 were less than 1.085. AF1845-7, AF1949-1, and B1327-6 had very small tuber size. B1240-1 and FL1625 were very late maturing (Maine Table 7). Sunburn was the major tuber defect in the trial. Atlantic, AF1775-2, AF1921-4, AF1921-9, B1240-1, and FL1533 had >15% sunburn. Several other external defect problems were observed: AF1775-2 (off shapes), AF1921-4 (off shapes), AF1921-9 (off shapes), AF1949-1 (growth cracks), B0178-34 (scab), B1240-1 (scab), B1327-6 (scab), FL1533 (growth cracks), and FL1625 (off shapes). There was very little hollow heart in this trial; however, AF1755-2 had 7.5% incidence in the larger tubers. Nearly all lines had very good chip color in this test. Only AF1921-4, AF1921-9, and AF1949-1 had significantly poorer chip color scores than Atlantic. Considering all attributes, the most promising numbered chipping line in this test was B1327-6.

Northern Aroostook County Advanced Breeding Lines. None of the lines produced significantly higher total or U.S.#1 yields than Atlantic in the advanced round-white variety test (Maine Table 8). AF1291-44, AF1611-9, AF1846-2, AF1938-3, ARS-W95-6527-1, ARS-W95-6550-2, B1497-22, B1598-4, and B1752-5 produced significantly lower U.S.#1 yields. AF1470-6 had a specific gravity less than 1.070. ARS-W95-6498-5, ARS-W95-6527-1, ARS-W95-6550-2, ARS-W95-6553-1, B1425-9, B1591-1, B1598-4, W1431, and W1443 had very small tuber size. AF1475-20 and AF1846-2 were very late maturing (Maine Table 9). Katahdin, Kennebec, AF1291-44, AF1611-9, AF1938-3, ARS-W95-6550-2, B1425-9, B1497-22, B1598-4, B1722-5, and B1752-5 had more than 15% scab. Kennebec, AF1569-2, and AF1938-3 had more than 10% sunburn. AF1470-6, AF1569-2, AF1611-9, AF1938-3, and B1591-1 had more than 5% growth-cracked tubers. Atlantic, AF1938-3, ARS-W95-6498-5, B1624-22, and W1443 had \geq 5% hollow heart out of 40 large tubers examined. Considering all attributes, the numbered lines in this test that were considered worthy of continued evaluation were: AF1764-3, ARS-W95-6553-1, SC8801-2, and W1443.

In the advanced russet or long-type variety test, only AF1753-16 produced significantly higher total yields than Russet Burbank (Maine Table 10). AF2061-2,

AF2129-1, and B1649-8 were significantly lower yielding than Russet Burbank. AF2061-2 and AF2129-1 had specific gravities less than 1.085. B1463-1 and B1649-1 had very small tubers. B1409-2 had the best tuber appearance (Maine Table 11). Shepody, AF1753-16, AF2061-2, B1649-8, and MN15620 had more than 10% misshapen tubers. B1463-1 had more than 5% growth-cracked tubers. Russet Burbank had $\geq 5\%$ hollow heart out of 40 large tubers examined. B1463-1 and MN15620 had significantly better chip color than Russet Burbank. Considering all attributes, the numbered lines in this test that were considered worthy of continued evaluation were: AF1753-16, B1409-2, and B1649-8.

CO86218-2 (red, table), and W1313 (chipping) were also promising, but were not consistent over locations.

Presque Isle Advanced Red- and Purple-skinned Breeding Lines. None of the test lines had U.S.#1 yields which were equal to Dark Red Norland (Maine Table 12). B1102-3, B1495-6, and B1529-1 had very good tuber appearance ratings; however, B1102-3 and B1529-1 were more susceptible to skinning than the other lines (Maine Table 13). Considering all attributes, the numbered lines in this test that were considered worthy of continued evaluation were: B1102-3, B1145-2, B1491-5, B1495-6, and B1529-1.

B1523-4 was the best red prospect in the 1999 trial. Bruise tests conducted in 1999 showed that it was relatively susceptible to skinning, but that it had good skin color from storage (Maine Table 14). B1495-6 and B1495-15 were especially susceptible to skinning, while B1145-2 was especially susceptible to shatter bruise. B1495-6, B1521-2, B1523-4, and B1529-1 had very good skin color from storage.

Miscellaneous Bruise Test Results from the 1999 Growing Season. Bruise test and black-spot bruise potential results from the 1999 Central Maine and St. Agatha experiments are presented in Maine Tables 15 and 16.

Promising Selections in the 2000 NE-184 Regional Variety Trials. Selections that performed particularly well in the 2000 regional trials were: Eva and AF1758-7 (medium to late maturing, table lines); NY112 (mid-season chipstock line, alternative to Atlantic); Russet Norkotah #8 (mid- to late-season fresh market russet). Gem Russet (russet) is the most promising NE-184 variety for french fry processing; however, slow emergence hampered its performance at one of two sites during 2000. W1443 showed promise for chipping; however, its specific gravity may not be high enough. Umatilla Russet (russet), AF1615-1 (round, table), AF1763-2 (round, table),

Maine Table 1. Trials sites and management practices for the 2000 potato variety trials.

Site information and/or Mgt. Practices	Aroostook Research Farm	Central Maine	Northern Aroostook County
Location:	Presque Isle	Exeter	St. Agatha
Grower Cooperator:	n/a	Crane Farms	LaBrie Farms
Soil Test Results:			
pH	5.6	6.1	5.5
P (lbs/A)	15.3 MH	34.0 VH	15.0 MH
K "	87 (1.5%,L)	412(6.7%,H)	141(2.0%,ML)
Mg "	211(11.8%,MH)	282(13.8%,MH)	248(11.4%,MH)
Ca "	1240(41.9%,ML)	2722(79.6%,VH)	1649(44.5%, ML)
CEC meq/100g	7.4	8.4	9.0
OM %	3.6	3.3	4.9
Previous Crop:	timothy/clover	corn	oats/ryegrass
Fall Tillage:	moldboard plow	chisel plow	moldboard plow
Spring Tillage:	disk & harrow	chisel plow + harrow	soil-finisher, 1X
Planting Date:	May 17-18	May 16	June 1
At-planting Insect- icide:	imidacloprid 0.81 pt/A	imidacloprid 1.0 pt/A	imidacloprid 0.75 pt/A
At-plant Fertilization:	140-140-140	180-150-220	168-216-168
Other Fertilization:	none	80 lbs/A K2O topdressed	2 gal 32%N (2X) foliar
Herbicide Program:	1.0 linuron,PE	0.875 linuron,PE	0.5 metrib.,GCK plus 1.5 pt/A paraquat,GCK
Irrigation:	No	Yes (4 inches)	No
Vine Desiccation: (initial applic.)	Aug. 23 (E/ME) Aug. 31 (meds.,reds) Sept. 13 (lates + russets)	Sept. 4	Sept. 13
Harvest:	Sept. 12 (E/ME) Sept. 21 (meds.) Sept. 29 (lates + russets)	Sept. 28	Oct. 18

Maine Table 2. 2000 Rainfall Summary.

Month	<u>Rainfall by Location and Month (inches)</u>		
	Presque Isle	Exeter ¹	St. Agatha ¹
May	4.56	n/a	n/a
June	2.48	2.31	3.30
July	2.55	4.42 (1.00)	4.32
August	3.04	2.50 (3.00)	3.10
Sept.	1.39	1.87	1.10
Total	14.02	n/a	n/a
Total (June 1 to August 31)	8.07	9.23 (13.23)	10.72

¹The Exeter site received approximately 4.0 inches of supplemental irrigation water during 2000. The numbers in parentheses indicate combined rainfall and supplemental irrigation.

Maine Table 3. French fry color and texture of selected potato clones and varieties under simulated processing conditions¹. All varieties were grown at Presque Isle, Maine, during 1999.

Variety	Color Grade ²		Grayness ³ Index	Mealiness ⁴ Index	Comments ⁵	Overall Rating ⁶
	Rating	Index %Dark				
Russet Burbank (std)	00-0	1.81	0.0	3.59	U	
Gem Russet	000-00	1.52	0.0	3.11	U	o
Russet Legend	000-00	1.75	0.0	3.18	U	o
Russet Norkotah	00-0	1.95	0.0	2.78	Ir	-
Russet Norkotah #3	00-1	2.98	0.0	2.50	Ir,Be	-
Russet Norkotah #8	00-1	2.40	0.0	2.57	Ir,Be	-
Shepody	000-00	1.30	0.0	3.42	Ir	-
Umatilla Russet	000-0	1.56	0.0	2.78	U	-
A81386-1	000-00	1.75	0.0	3.01	U	o
A84118-3	000-00	1.26	0.0	3.05	U	o
A84180-8	000-0	1.88	0.0	3.35	Ir,Be	-
A86102-6	00-1	2.56	0.0	3.02	Ir	-
W1099Rus	000-0	1.30	0.0	2.77	U	-
W1151Rus	000-0	2.14	0.0	2.09	Ir	-
W1348Rus	000-00	1.26	0.0	3.17	U,Sh	-
Waller Duncan	LSD (k=100)	0.91	ns	0.75		

¹Two center raw tuber slices were cut from each of ten tubers. The slices were rinsed in cool water, blanched for 8 minutes at 170°F, par-fried at 375°F for 80 seconds, and quick frozen at -30°C in plastic bags. Four such replications were processed during December 1999 and held at -15°F until evaluation. Prior to evaluation, samples were finish-fried at 360°F for 2-1/2 minutes on June 30, 2000, blotted dry with a paper towel, and cooled for 6 minutes. Processing was done at the Department of Food Science and Human Nutrition, University of Maine, Orono, ME (We appreciate the help of Dr. Al Bushway). All tuber samples were stored at 50°F, 85% R.H. from harvest until processing. Percent dark = the percentage of fries that were rated in the 2 category or darker after processing (out of 80 slices representing 40 tubers).

²Color Grades are from USDA color standards chart #64-1, third edition. Lower indices indicate lighter color.

³Grayness indices represent weighted means derived from the following evaluation scale: 4 = no graying;

3 = slight graying; 2 = moderate graying; 1 = intense graying.

⁴Mealiness indices represent weighted means using the following scale: 6=very dry and mealy; 5 = dry, mealy;

4 = mod. mealy, sl. moist; 3 = sl. mealy, mod. moist; 2 = soggy, not mealy; 1 = very soggy, not mealy.

⁵Comments: U = uniform fried color; Ir = french fries were irregular in color; dark blotches detracted from appearance of product; Be = Dark blotches on ends of many fries; Bc = Dark blotches in centers of many fries; Bl = general blotchy appearance of fries; Sh = Short fries from small and/or round tubers.

⁶Overall rating: quality rated better (+), not different (o), or poorer (-) than Russet Burbank.

Maine Table 4. Chip color from 38°F, 45°F, and 50°F storage, reconditioning potential, bruise test scores, days to sprout formation, and storage weight losses at 38°F and 50°F for 47 potato varieties grown at Presque Isle, Maine, during 1999 and stored during the 1999-2000 storage season.

Variety	Chip Color from Storage		Bruise Test Scores ³		Blackspot		Days to Indic. Storage Wt.	
	50°F ¹	45°F ¹	38°F ¹	Recond. ²	Skin- Shatter Inter- nal	Bruise Potential ⁴	Sprout Length ⁵	Loss % ⁶
							PIP	1/2" 38°F 50°F
<u>Early/Med. Early Trial:</u>								
Superior (std)	56	--	--	--	1.19	2.05	1.52	4.82
Atlantic	61	--	--	--	1.52	1.48	1.76	3.80
Chieftain	40	--	--	--	2.16	1.36	1.24	3.95
Itasca	59	--	--	--	4.71	1.64	1.21	4.42
NorDonna	45	--	--	--	1.73	1.13	1.20	4.75
Norland, Dk. Red	53	--	--	--	1.77	2.85	1.23	3.96
AF1437-1	62	--	--	--	1.42	2.25	1.42	4.52
W1100R	60	--	--	--	3.23	4.46	2.46	4.98
W1101R	54	--	--	--	3.75	1.83	1.58	4.95
Waller Duncan LSD	3							0.32
<u>Medium Chipping Trial:</u>								
Atlantic (std)	65	51	20	45	4.50	1.80	2.00	3.48
Eva (NY103)	66	54	25	46	1.58	1.83	1.42	2.98
Kennebec	63	48	22	45	2.00	2.31	2.38	4.68
MaineChip	63	61	43	54	2.06	1.41	1.53	4.61
Snowden	65	60	31	59	1.08	1.38	1.77	4.38
B0766-3	69	60	25	41	1.45	1.36	2.27	4.28
ND2676-10	70	66	35	54	2.00	2.23	1.15	1.92
NY112	61	58	28	52	1.42	1.00	1.64	4.03
NY115	70	62	30	49	1.81	1.44	1.31	3.48
W1313	66	61	36	49	1.85	2.46	3.58	2.25
Waller Duncan LSD	3	6	4	5				0.61

Maine Table 4. Continued

Variety	Chip Color from Storage		Bruise Test Scores ³		Blackspot Bruise Potential ⁴	Days to Indic.			Storage Wt.	
	50°F ¹	45°F ¹	38°F ¹	Recond. ²	Skin- Shatter ning	Inter- nal	PIP	½"	38°F	50°F
<u>Late Trial:</u>										
Katahdin	60	--	--	--	5.78	1.89	1.44	4.00	111	153
Accent	51	--	--	--	1.28	1.33	1.17	3.95	90	132
Accord	62	--	--	--	1.45	1.59	1.27	4.25	97	118
Atlantic	64	62	30	41	2.24	1.76	2.12	2.90	111	146
Cycloon	60	52	18	26	2.07	1.47	1.47	4.28	76	111
Keuka Gold	64	--	--	--	2.46	1.58	1.12	3.47	104	146
Lady Christy ¹	43	--	--	--	1.45	1.45	1.14	4.20	90	118
Lady Claire	63	--	--	--	2.43	1.18	1.29	3.67	146	167
Lady Olympia	65	60	24	34	1.86	1.43	1.19	4.22	146	167
Shepody	62	46	20	32	2.42	1.83	1.26	4.21	111	146
Superior	58	--	--	--	1.01	1.68	1.68	3.76	111	132
Yukon Gold	60	--	--	--	1.80	1.80	1.13	3.50	153	178
AF1615-1	60	--	--	--	3.00	1.56	1.39	2.60	104	132
W. Duncan LSD	3	5	4	12				0.81		
<u>Russet/Processing Trial:</u>										
Russet Burbank	59	52	26	37	1.96	1.33	1.25	-	167	205
Gem Russet	62	53	25	34	2.82	1.35	1.65	4.27	167	212
Russet Legend	65	52	32	42	4.08	2.58	1.83	3.47	160	188
R. Norkotah	55	47	19	28	1.29	1.29	1.24	4.70	146	167
R. Norkotah #3	50	43	22	32	3.73	1.27	1.36	4.25	153	188
R. Norkotah #8	55	44	20	28	2.92	1.08	1.08	-	153	174
Shepody	59	44	20	29	2.08	1.25	1.42	2.50	125	153
Umatilla Rus.	60	52	31	37	2.54	4.85	2.38	4.33	146	167
A81386-1	62	57	36	53	3.25	1.58	1.42	4.75	153	174
A84118-3	64	55	24	34	6.50	1.19	1.25	4.02	174	212
A84180-8	58	47	20	31	2.08	2.38	1.08	3.90	174	212
A86102-6	57	39	26	32	4.31	2.06	1.31	3.71	160	205
W1099Rus	62	50	25	33	2.00	1.20	1.07	2.58	90	125
W1151Rus	60	51	26	37	3.00	1.07	1.07	3.55	97	139
W1348Rus	64	58	39	51	3.39	1.06	1.72	4.93	104	146
W. Duncan LSD	3	4	3	9				1.13		

Maine Table 4. Continued.

- ¹Stored at 38°F, 45°F, or 50°F, 85% R.H. from harvest until January 31 to February 8, 2000. Chip color scores are from an Agtron Model M-35 Process Analyzer (Agtron, Inc., Sparks, Nevada; calibrated with black disk "0" = 0 and white disk "90" = 90). Chips were crushed and reported values are means from four replicate samples. Each sample was read three times and was thoroughly mixed between readings. Higher numbers indicate lighter chip colors.
- ²Reconditioned samples were taken from 38°F and placed at 70°F for a 3-week period starting on January 12, 2000. See Agtron description under footnote #1.
- ³Skinnering and shatter bruise were measured on September 23 (earlies, mediums) or October 1 (lates, russets), 1999. Approximately 10 lbs of tubers that exceeded 1 7/8" diameter were tumbled in a drum with three stones for 1 minute at 15 rpm. Tubers were then rated for skinning and shatter bruise. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected. The tubers were then placed in 45°F storage and rated for internal damage on February 16 to 18, 2000 where: 1=all tubers have no visible internal injury and 5=all tubers have severe internal injury.
- ⁴Abrasive peel test for biochemical aspects of blackspot bruise potential (see Pavek et al., APJ 62:511-517). The late samples were run on January 12, 2000, while the rest were run from February 10-12, 2000. The index presented indicates the severity of discoloration where: 0=no tubers show discoloration and 5=all tubers have severe discoloration.
- ⁵Tubers were stored at 45°F, 85% R.H.
- ⁶Percentage sprout and weight loss following storage from harvest until March 21, 2000 at indicated temperature and 85% R.H. Codes "s" or "r" indicate heavily sprouted or samples with more than two spoiled tubers, respectively.

Maine Table 5. March through May chip color scores for NE-184 lines grown in central Maine (East Corinth) and northern Maine (Presque Isle) during 1999 and chipped during the 1999-2000 storage season.

Variety or Breeding Line	Agtron M35 Score by Location, Chipping Date, and Storage Temperature ¹				
	Central Maine (East Corinth)		Northern Maine (Presque Isle) from 50F		
	March 3 45F	March 3 45F recond. 50F	March 6	Feb. 23	March 21 April 20
Atlantic	62.9	64.2	67.8	62.2	64.5
Eva (NY103)	67.9	66.9	69.2	63.5	62.5
Itasca	66.0	66.8	68.1		64.8
Katahdin	48.0	48.9	64.5		
Kennebec	56.2	56.0	64.8		
Keuka Gold (NY101)	66.6	65.0	67.5		
MaineChip	68.3	65.2	64.8	63.4	64.8
Snowden	65.8	64.3	66.6	63.7	63.9
Superior	50.5	50.6	62.7		63.0
Yukon Gold	41.2	49.2	66.7		
AF1437-1	52.0	57.9	65.8		
AF1615-1	50.0	52.6	63.6		
B0766-3	64.7	64.4	68.6	66.2	64.6
FL1533	65.6	65.5	63.6		
FL1625	69.0	65.6	65.2		
ND2776-10	73.6	70.0	69.4		
NY112	67.8	64.8	65.5	62.1	61.7
NY115	70.4	62.5	67.4	65.8	66.0
W1313	65.6	63.0	64.8		
W-Duncan LSD (k=100)	4.9	4.0	3.1	2.2	4.4
					2.9

¹Chip color scores are from an Agtron Model M-35 Process Analyzer (Agtron, Inc., Sparks, Nevada; calibrated with black disk "0" = 0 and white disk "90" = 90). Chips were crushed and reported values are means from four replicate samples. Each sample was read three times and was thoroughly mixed between readings. Higher numbers indicate lighter chip colors. Reconditioned samples were warmed to room temperature (65 to 70F) and held at room temperature for two weeks.

Maine Table 6. Yield, marketable yield, percentage of yield by grade size distribution, and specific gravity for 13 medium-maturing, chipping varieties and advanced breeding lines grown at Exeter, Maine - 2000. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Total yield cwt/A	US#1 Yield (cwt/A) ¹ >1 ⁷ / ₈ " % of std.	Stand (spacing) ²	Size Distribution by Class ³ (%)											
				1	2	3	4	5	6	1 ⁷ / ₈ 2 ¹ / ₄ 2 ¹ / ₂			Spec.		
										to 4" to 4" to 4" Grav.					
Central ME Advanced Test- 115 days															
Atlantic (std)	384	237	100	211	98(10)	3	10	23	50	14	0	97	87	64	1.096
Snowden	337	249	105	202	97(14)	5	18	27	41	9	1	94	77	50	1.097
AF1668-60	158	128	54	100	86(10)	6	21	30	36	7	0	94	73	43	1.091
AF1775-2	364	183	77	172	95(10)	2	6	18	47	24	5	94	88	70	1.091
AF1845-7	253	215	91	154	98(10)	7	27	30	33	4	0	93	66	37	1.083
AF1921-4	315	164	69	129	98(10)	5	20	28	37	9	0	95	74	46	1.081
AF1921-9	200	109	46	91	74(10)	5	16	26	42	12	0	95	80	54	1.080
AF1949-1	248	184	78	111	97(10)	11	36	27	26	1	0	89	54	26	1.094
B0178-34	433	236	100	207	100(10)	4	12	23	53	8	1	96	84	61	1.099
B1240-1	370	180	76	165	98(10)	2	9	22	45	19	3	95	86	64	1.085
B1327-6	368	276	116	206	99(10)	5	24	40	26	6	0	95	71	31	1.089
FL1533	301	217	92	182	96(8)	4	16	25	47	9	0	96	81	56	1.079
FL1625	253	199	84	173	98(8)	2	13	25	50	9	0	98	85	59	1.098
Waller Duncan															
LSD (k=100)	50	61		59								4	8	14	0.006

¹U.S.#1 yield = yield 1⁷/₈ to 4" excluding external defects.

²Inches between seed pieces noted within parentheses.

³Size classes: 1=1¹/₂ to 1⁷/₈"; 2=1⁷/₈ to 2¹/₄"; 3=2¹/₄ to 2¹/₂"; 4=2¹/₂ to 3¹/₄"; 5=3¹/₄ to 4"; 6=over 4".

Maine Table 7. Plant size, maturity at vine-kill, tuber shape, tuber defects, hollow heart ratings, and chip color scores for 13 medium-maturing, chipping varieties and advanced breeding lines grown at Exeter, Maine - 2000. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Plant Data ¹			Tuber Data ¹			Tuber Defects (%)					Chip Color ³			
	Size	Maturity	Skin-	Shat-	Skin	Appear-	Total	burn	shapen	cracks	Scab		Rot		
	7-21	8-15	@VK	ning ⁴	ter	Brui ⁵									
	Bruise ⁴ ture														
Central ME Advanced Test- 115 days															
Atlantic (std)	7	6	5.0	2.00	1.96	6	2	6	35.4	27.9	3.3	1.4	2.8	0.0	69
Snowden	7	7	5.3	1.35	1.31	5	2	4	22.1	14.4	6.3	0.0	1.4	0.0	68
AF1668-60	3	4	2.5	3.24	2.08	7	3	6	13.0	6.3	2.2	1.3	3.2	0.0	71
AF1775-2	5	7	5.3	2.75	2.21	7	4f1	4	49.1	33.8	10.9	0.6	3.7	0.0	69
AF1845-7	5	5	4.0	2.71	1.56	6	3	6	8.1	6.0	1.0	0.3	0.9	0.0	68
AF1921-4	6	5	3.3	1.65	1.83	6	3	5	44.7	35.9	7.7	0.4	0.6	0.0	65
AF1921-9	4	6	2.8	1.63	1.68	7	4	5	41.5	27.7	13.8	0.0	0.0	0.0	62dpm
AF1949-1	6	6	5.0	1.71	1.85	6	3	4	17.7	8.5	3.6	5.2	0.3	0.0	66
B0178-34	8	6	4.5	2.00	2.00	7	3	6	38.8	13.6	1.6	3.0	20.5	0.0	70
B1240-1	5	9	6.8	2.50	1.40	7	3	5	45.3	28.3	3.6	2.1	11.3	0.0	69
B1327-6	7	7	5.3	1.55	1.90	6	4	6	22.6	6.7	4.6	2.0	9.3	0.0	69
FL1533	7	5	4.8	2.55	2.50	6	4	5pu	30.0	17.2	4.7	7.7	0.4	0.0	71
FL1625	6	8	5.8	1.25	1.50	5	3	5	19.1	8.7	7.7	2.7	0.0	0.0	70

¹See standard NE-184 rating system for key to codes. fl=flat tubers; pu=purple coloration around eyes.

²Hollow heart rating equals the number of hollow tubers found per 40 large tubers cut and examined.

³Chip color from 50F -- Agron M35 (higher values indicate lighter color): >60 acceptable; dp=dark pith and medulla tuber. The chipping date was December 4, 2000. Waller Duncan LSD (K=100) for chip color = 3.

⁴Skinning and shatter bruise were measured on October 5, 2000. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected.

Maine Table 8. Yield, marketable yield, percentage of yield by grade size distribution, and specific gravity for 26 round-white varieties and advanced breeding lines grown at St. Agatha, Maine - 2000. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Total Yield cwt/A	US#1 Yield (cwt/A) ¹ >1 ⁷ / ₈ " % of std.	% Stand (spacing) ² 7-6	Size Distribution by Class ³ (%)													Spec. 2 ¹ / ₂ to 4" Grav.
				1	2	3	4	5	6	1 ⁷ / ₈ to 4"	2 ¹ / ₄ to 4"	2 ¹ / ₂ to 4"	2 ¹ / ₂ to 4"				
St. Agatha Advanced Round-white Test - 104 days																	
Atlantic (std)	397	303	100	260	97	(10)	3	14	35	42	5	0	97	82	47	1.097	
Katahdin	343	151	50	132	97	(8)	3	14	30	46	6	1	96	82	52	1.079	
Kennebec	352	180	59	158	96	(8)	4	12	22	40	22	0	96	84	62	1.082	
Superior	283	225	74	187	94	(10)	3	17	44	35	2	0	97	81	37	1.081	
AF1291-44	266	62	20	57	91	(10)	3	10	30	50	7	0	97	86	57	1.077	
AF1470-6	420	301	99	251	93	(10)	7	16	20	37	18	1	91	75	55	1.060	
AF1475-20	383	303	100	265	89	(10)	4	11	26	54	4	0	96	84	58	1.094	
AF1569-2	377	224	74	194	90	(10)	3	13	18	47	17	2	95	82	63	1.072	
AF1611-9	255	123	41	103	99	(10)	4	17	33	44	3	0	96	80	47	1.072	
AF1764-3	262	228	75	196	95	(10)	3	14	27	50	6	0	97	83	56	1.074	
AF1846-2	201	139	46	129	60	(10)	2	7	14	39	32	6	92	85	71	1.073	
AF1938-3	351	122	40	101	94	(10)	4	16	30	42	8	1	96	79	49	1.073	
ARS-W95-6498-5	348	258	85	184	95	(10)	7	26	31	35	0	1	92	66	35	1.085	
ARS-W95-6527-1	212	157	52	107	98	(10)	12	29	39	20	0	0	88	59	20	1.084	
ARS-W95-6550-2	284	162	54	124	97	(10)	8	24	36	31	1	0	92	68	32	1.077	
ARS-W95-6553-1	301	233	77	154	93	(10)	9	30	35	23	2	1	90	60	25	1.089	
B1425-9	431	250	82	176	100	(10)	8	28	39	24	1	0	92	64	25	1.104	
B1497-22	300	164	54	123	100	(10)	4	23	30	38	5	0	96	73	44	1.091	
B1591-1	275	213	70	145	96	(10)	10	29	36	23	2	0	90	62	25	1.095	
B1598-4	350	178	59	107	99	(10)	12	34	36	18	0	0	88	55	19	1.080	
B1624-22	378	281	93	223	96	(10)	4	20	38	37	2	0	96	76	39	1.076	
B1722-5	336	215	71	170	99	(10)	4	20	32	39	4	0	96	76	43	1.079	
B1752-5	314	110	36	91	95	(10)	4	16	38	40	3	0	96	80	42	1.077	
SC8801-2	359	297	98	274	89	(10)	2	7	19	50	21	1	97	90	71	1.075	
W1431	260	205	68	145	97	(10)	9	28	32	29	2	0	91	63	31	1.091	
W1443	311	269	89	200	100	(10)	7	25	34	32	1	0	93	67	33	1.080	
W-D LSD (k=100)	75	108		90									4	9	13	0.004	

¹U.S.#1 yield = yield 1⁷/₈ to 4" excluding external defects.

²Inches between seed pieces noted within parentheses.

³Size classes: 1=1¹/₂ to 1⁷/₈"; 2=1⁷/₈ to 2¹/₄"; 3=2¹/₄ to 2¹/₂"; 4=2¹/₂ to 3¹/₄"; 5=3¹/₄ to 4"; 6=over 4".

Maine Table 9. Plant size, maturity at vine-kill, tuber shape, tuber defects, hollow heart ratings, and chip color scores for 26 round-white varieties and advanced breeding lines grown at St. Agatha, Maine - 2000. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Plant Data ¹			Tuber Data ¹			Tuber Defects (%)				Hollow Heart	
	Size	Matur. at	Skin-ning ³	Shat-ter Bruise ³ ture	Shape	Appear-ance	Total	Sun-burn	Mis-shapen	Growth cracks	Scab	Rot Rating ²
St. Agatha Advanced Round-White Test - 104 days												
Atlantic (std)	7	6.3	2.04	1.67	5	3	21.9	3.7	2.9	1.3	13.6	0.4 2
Katahdin	6	6.8	2.27	1.58	7	2	56.4	6.7	0.6	0.2	48.7	0.2 0
Kennebec	8	6.8	3.24	1.84	7	4	46.5	12.3	10.4	3.7	19.6	0.5 0
Superior	7	4.0	1.82	1.91	5	2	21.0	1.2	6.2	0.1	13.4	0.0 0
AF1291-44	6	5.0	1.96	2.38	6	4	77.9	2.2	0.3	0.3	75.0	0.2 0
AF1470-6	5	5.3	2.44	1.64	7	2	22.4	6.7	0.2	6.9	8.5	0.1 0
AF1475-20	8	7.5	2.09	2.00	7	2	17.0	3.1	1.8	0.4	10.8	0.9 0
AF1569-2	6	5.5	2.20	1.32	6	4	36.8	14.6	1.6	6.7	13.8	0.1 0
AF1611-9	5	4.8	1.56	1.75	6	3	47.8	3.6	0.9	13.3	27.1	2.9 0
AF1764-3	6	7.0	2.27	2.39	7	2	10.4	2.3	4.6	1.0	1.6	0.9 0
AF1846-2	3	7.5	2.41	1.34	6	2fl	23.8	8.5	2.3	1.0	11.7	0.2 0
AF1938-3	5	6.8	2.19	2.00	7	3	61.8	11.6	2.9	10.1	37.3	0.0 2
ARS-W95-6498-5	7	6.3	1.76	1.27	5	3pr	20.3	1.5	2.6	1.9	13.1	1.2 2
ARS-W95-6527-1	6	5.5	1.68	2.18	6	2	18.0	0.4	4.2	3.2	10.2	0.1 0
ARS-W95-6550-2	6	5.0	1.96	1.60	7	2	37.7	2.4	3.6	0.1	31.6	0.0 0
ARS-W95-6553-1	6	5.5	2.23	2.31	6	3	14.1	2.6	4.6	0.4	6.5	0.1 0
B1425-9	9	6.8	1.96	1.67	5	3	39.4	2.8	6.2	0.3	29.0	1.1 0
B1497-22	7	5.3	2.38	1.91	5	3	42.5	1.7	1.8	0.4	37.1	1.5 0
B1591-1	6	5.8	1.38	2.21	5	2	14.9	1.1	0.8	5.1	7.1	0.8 0
B1598-4	6	5.3	1.80	2.14	5	2	42.5	0.7	1.6	0.4	39.5	0.3 0
B1624-22	6	5.5	2.13	1.90	5	3	22.2	1.3	0.4	4.3	13.9	2.3 9
B1722-5	7	5.3	2.35	1.97	6	2	33.4	4.4	7.6	2.4	18.9	0.0 1
B1752-5	5	5.8	1.84	1.50	6yl	2	61.9	2.9	1.0	1.9	56.0	0.1 1
SC8801-2	4	6.8	2.25	2.00	6	4	14.4	6.3	2.5	0.7	4.2	0.7 0
W1431	7	6.8	2.79	1.67	6	3	15.4	2.1	2.1	0.1	10.5	0.6 0
W1443	6	6.8	1.68	1.25	5	2	7.6	2.9	2.7	0.2	0.9	0.8 2

¹See standard NE-184 rating system for key to codes. air=air cracks; fl=flat tubers; pr=many pear-shaped tubers; pe=pink coloration at eyes; yl=yellow color.

²Hollow heart rating equals the number of hollow tubers found per 40 large tubers cut and examined.

³Skinning and shatter bruise were measured on October 24, 2000. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected.

Maine Table 10. Yield, marketable yield, percentage of yield by grade size distribution, and specific gravity for 10 russet/processing (long-tuber-type) varieties and advanced breeding lines grown at St. Agatha, Maine - 2000. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Total		US#1 Yield (cwt/A) ¹		% Stand (spacing) ²	Size Distribution by Class ³ (%)											Spec. Grav.	
	Yield cwt/A	std.	>1 1/2" % of > 4 oz.			7-6	>8 oz											
			by length				>3" >3 1/2"											
St. Agatha Advanced Russet/processing Test- 104 days																		
R. Burbank (std)	326		290	100	190	100 (16)	35	45	18	3	0	21	3	61	40	1.087		
R. Norkotah	318		295	102	222	93 (14)	25	49	21	4	1	25	5	73	53	1.081		
Shepody	373		205	71	182	98 (10)	11	32	29	17	11	57	28	86	77	1.085		
AF1753-16	390		300	103	262	100 (16)	13	39	30	16	2	48	18	85	75	1.091		
AF2061-2	234		179	62	125	95 (16)	31	39	23	5	2	30	7	66	54	1.080		
AF2129-1	252		227	78	175	98 (16)	23	42	28	7	1	35	8	76	60	1.078		
B1409-2	344		289	100	226	97 (16)	22	56	19	3	0	22	3	71	41	1.097		
B1463-1	288		250	86	175	98 (16)	30	59	11	1	0	11	1	66	44	1.085		
B1649-8	246		218	75	149	95 (16)	32	52	15	1	0	16	1	59	31	1.087		
MN15620	334		264	91	208	95 (16)	22	47	21	7	3	32	11	76	59	1.087		
Waller Duncan																		
LSD (k=100)	61		51		44							10	6	7	9	0.004		

¹U.S.#1 yield = yield >1½" excluding external defects.

²Inches between seed pieces noted within parentheses.

³Size classes: 1= <4 oz; 2=4 to 8 oz.; 3=8 to 12 oz.; 4=12 to 16 oz.; 5= >16 oz.

Maine Table 11. Plant size, maturity at vine-kill, tuber shape, tuber defects, hollow heart ratings, and chip color scores for 10 russet/processing (long-tuber-type) varieties and advanced breeding lines grown at St. Agatha, Maine - 2000. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Plant Data ¹			Tuber Data ¹			Tuber Defects (%)							Chip Color ³	
	Size 8-3	Matur. at V. kill	Skin-ning ⁴	Shat-ter Bruise ⁴	Skin Tex- ture	Appear- Shape ance	Total	Sun- burn	Mis- shapen	Growth cracks	Scab	Rot	HH ²		
St. Agatha Advanced Russet/processing Test- 104 days															
R. Burbank (std)	7	6.8	1.33	1.35	1	6	3ptd	10.9	1.0	7.4	1.6	0.7	0.1	2	27
R. Norkotah	6	5.3	1.23	1.21	4	6	5	7.3	0.6	6.0	0.2	0.2	0.2	1	25
Shepody	7	6.0	1.75	2.05	7wh	7	5	44.4	6.7	22.8	0.1	10.9	3.8	1	25
AF1753-16	8	7.3	1.57	1.70	6tn	7	4nr	23.0	3.2	12.4	0.0	3.7	3.6	0	22
AF2061-2	3	4.5	1.62	1.16	4	7	5	24.3	2.3	13.5	0.0	3.4	5.1	1	29
AF2129-1	5	5.0	1.40	1.72	3	6	5nr	9.5	0.4	7.2	0.3	0.0	1.7	1	37
B1409-2	5	5.8	1.27	1.65	3	6	7	15.7	0.4	8.8	0.0	5.7	0.8	0	31
B1463-1	6	4.8	1.21	2.10	2	6	6	13.0	0.0	5.3	7.0	0.1	0.7	1	32
B1649-8	4	6.0	1.06	2.57	3	4	4	11.5	0.5	10.2	0.0	0.9	0.0	0	26
MN15620	7	7.5	1.88	1.58	7sp	6	4	20.8	0.1	15.8	0.1	2.4	2.4	0	48

¹See standard NE-184 rating system for key to codes. wh=white skin; tn=tan skin; sp=salmon pink/pale red; nr=nonuniform russetting; ptd=many pointed ends.

²Hollow heart rating equals the number of hollow tubers found per 40 large tubers cut and examined.

³Chip color from 50F -- Agtron M35 (higher values indicate lighter color): >60 acceptable; dr=dark vascular ring. The chipping date was December 5, 2000. Waller Duncan LSD (K=100) for chip color = 5.

⁴Skinnering and shatter bruise were measured on October 25, 2000. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected.

Maine Table 12. Yield, marketable yield, percentage of yield by grade size distribution, and specific gravity for 8 red- and purple-skinned varieties and advanced breeding lines grown at Aroostook Research Farm, Presque Isle, Maine - 2000. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Total yield cwt/A	US#1 Yield (cwt/A) ¹ >1 ⁷ / ₈ " % of std.	Stand (spacing) ²	50% Emerg. Date	Size Distribution by Class ³ (%)										Spec. Grav.	
					1 ⁷ / ₈ 2 3 4 5 6 to 4"to 4" 2 ¹ / ₄ 2 ¹ / ₂											
					1	2	3	4	5	6 to 4"to 4"	2 ¹ / ₄	2 ¹ / ₂				
Advanced Red Test- 100 days																
Norland,DR (std)	296	262	100	163	98(8)	6-19	9	35	38	18	0	0	91	56	18	1.073
B0811-4	199	153	58	60	89(8)	6-23	18	50	29	4	0	0	82	32	4	1.097
B1102-3	198	140	53	45	94(8)	6-25	24	52	23	1	0	0	76	24	1	1.078
B1145-2	297	245	94	140	95(8)	6-20	10	39	35	16	0	0	90	51	16	1.076
B1491-5	253	207	79	105	78(8)	6-25	13	43	32	12	0	0	87	44	12	1.080
B1492-12	246	192	73	90	91(8)	6-22	16	44	28	12	0	0	84	40	12	1.089
B1495-6	219	172	66	71	89(8)	6-23	17	49	30	5	0	0	83	34	5	1.084
B1529-1	252	215	82	128	98(8)	6-19	11	36	32	20	1	0	89	53	21	1.088
Waller Duncan																
LSD (k=100)	32	37		29									8	9	8	0.004

¹U.S.#1 yield = yield 1⁷/₈ to 4" excluding external defects.

²Inches between seed pieces noted within parentheses.

³Size classes: 1=1¹/₂ to 1⁷/₈"; 2=1⁷/₈ to 2¹/₄"; 3=2¹/₄ to 2¹/₂"; 4=2¹/₂ to 3¹/₄"; 5=3¹/₄ to 4"; 6=over 4".

Maine Table 13. Plant size, maturity at vine-kill, tuber shape, tuber defects, hollow heart ratings, and chip color scores for 8 red- and purple-skinned varieties and advanced breeding lines grown at Aroostook Research Farm, Presque Isle, Maine - 2000. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Plant Data ¹		Tuber Data ¹				Tuber Defects (%)								
	Size	Maturity	Skin- ning	Shat- ter	Skin Tex- ture	Appear- Shape	Total	Sun- burn	Mis- shapen	Growth cracks	Scab	Rot	HH ²		
Advanced Red Test- 100 days															
Norland, DR (std)	6	3	2.8	1.69	1.44	7pr	3	5	3.1	1.4	1.1	0.6	0.0	0.0	0
B0811-4	4	6	4.0	1.22	1.24	6pr	2	5	6.6	0.7	4.0	2.0	0.0	0.0	0
B1102-3	5	4	2.5	2.18	1.40	8rd	1	7	7.4	0.7	4.2	2.5	0.0	0.0	0
B1145-2	7	3	2.3	1.74	1.64	6br	1	6	8.5	1.5	3.3	3.8	0.0	0.0	0
B1491-5	4	5	3.8	1.35	1.29	6dr	1	6	6.1	0.3	4.6	1.2	0.0	0.0	0
B1492-12	5	8	5.8	1.61	1.32	6rd	2	5sc	7.2	2.7	4.4	0.2	0.0	0.0	0
B1495-6	6	4	3.0	1.53	1.29	7rd	3	7	5.3	1.4	3.7	0.2	0.0	0.0	0
B1529-1	6	7	5.5	2.19	1.66	7dpur	2	7	4.4	0.0	1.8	2.6	0.0	0.0	0

¹See standard NE-184 rating system for key to codes. sc=scaley or scurfy; br=bright red skin; dr=dark red skin; rd=medium red; pr=pale to medium-red skin; sp=salmon pink; dpur=dark purple; fl=flat tubers; sk=severe skinning at harvest.

²Hollow heart rating equals the number of hollow tubers found per 40 large tubers cut and examined.

³Skinnering and shatter bruise were measured on September 22, 2000. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected.

Maine Table 14. Bruise test and washed skin color evaluations for 8 red- and purple-skinned varieties and advanced breeding lines grown at Aroostook Research Farm, Presque Isle, Maine - 1999. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Bruise Test Results ¹			Washed Skin Color ²	
	Skinning	Shatter	Internal	Index	% Good to Excellent
<u>Advanced Red Test (1999)</u>					
Dark Red Norland (std)	1.30	1.68	1.08	3.60	55
B0811-4	1.12	1.19	1.19	4.39	73
B1145-2	1.44	2.38	1.19	3.01	7
B1491-5	1.70	1.50	1.14	2.98	10
B1492-12	1.84	1.47	1.11	3.93	72
B1493-1	2.00	1.48	1.52	3.24	26
B1493-3	1.59	1.29	1.29	3.02	2
B1495-6	3.00	2.19	2.00	5.00	100
B1521-2	2.72	1.22	1.00	4.00	100
B1523-4	2.81	1.00	1.56	4.50	100
B1524-2	1.67	1.50	1.28	3.01	1
B1526-1	1.43	1.00	1.26	3.59	54
B1529-1	2.35	1.95	1.55	4.99	100
B1495-15	3.42	1.00	1.21	2.93	1
Waller Duncan LSD (k=100)				0.57	38

¹Skinning and shatter bruise were measured on September 23, 1999. Approximately 10 lbs of tubers that exceeded 1 1/8" diameter were tumbled in a drum with three stones for 1 minute at 15 rpm. Tubers were then rated for skinning and shatter bruise. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected. The tubers were then placed in 45°F storage and rated for internal damage on February 16, 2000 where: 1=all tubers have no visible internal injury and 5=all tubers have severe internal injury.

²Washed appearance ratings were conducted on April 6, 2000. Individual tubers were rated for skin appearance using the following scale: 1=poor; 2=fair; 3=good; 4=excellent. The index value is a weighted average for the 10 lbs of tubers washed for each variety in each replication.

Maine Table 15. Bruise test and blackspot bruise potential for NE-184 varieties grown at Central Maine (Exeter) and Northern Maine (St. Agatha) - 1999.

Variety	Bruise Test Results ¹			Blackspot Bruise Potential ²
	Skinning	Shatter	Internal	
<u>1999 Exeter, Maine NE-184</u>				
<u>Round-white and Chipping Test:</u>				
Atlantic (std)	2.14	1.43	1.29	3.50
Itasca	4.11	1.22	1.19	3.95
Eva (NY103)	1.53	1.93	1.27	3.50
FL1533	3.44	2.88	1.75	4.75
FL1625	2.17	1.39	1.61	4.48
Katahdin	3.29	1.67	1.43	4.52
Kennebec	3.14	1.55	1.91	4.38
Keuka Gold (NY101)	1.92	1.49	1.32	3.89
MaineChip	3.00	1.76	1.55	5.00
Snowden	2.17	1.41	1.45	4.98
Superior	1.42	1.62	1.35	4.80
Yukon Gold	2.64	1.84	1.24	4.15
AF1437-1	2.63	2.50	1.94	4.68
AF1615-1	2.70	1.44	1.67	3.90
B0766-3	2.77	2.23	1.62	4.61
ND2676-10	1.79	2.18	1.28	1.11
NY112	2.13	1.22	1.35	4.08
NY115	2.65	1.48	1.04	4.75
W1313	2.73	2.53	1.73	2.86
Waller Duncan LSD (k=100)				0.51
<u>1999 St. Agatha NE-184</u>				
<u>Round-whites and Reds:</u>				
Atlantic (std)	1.78	2.56	1.67	2.40
Eva (NY103)	1.90	1.86	1.05	3.02
Itasca	2.78	1.61	1.17	3.48
Katahdin	2.10	2.52	1.57	4.58
Kennebec	2.35	1.88	1.41	4.45
Keuka Gold (NY101)	2.07	2.14	1.21	4.05
Snowden	1.67	1.96	1.21	3.70
Superior	1.81	3.06	1.53	3.78
Yukon Gold	1.57	2.00	1.14	3.30
AF1437-1	1.55	2.95	1.00	4.32
AF1615-1	1.87	2.30	1.04	1.85
B0766-3	1.64	2.50	1.23	4.25
NY112	1.82	1.86	1.18	2.65
NY115	1.76	1.90	1.00	3.05
<u>Reds:</u>				
Chieftain	1.38	2.50	1.13	3.60
NorDonna	1.58	1.21	1.04	4.58
Norland, Dark Red	1.58	2.53	1.21	3.85
W1100R	1.36	2.43	2.36	4.82
W1101R	2.00	2.15	1.55	4.95
Waller Duncan LSD (k=100)				0.87

Maine Table 15. Continued.

Variety	Bruise Test Results ¹			Blackspot Bruise Potential ²
	Skinning	Shatter	Internal	
<u>1999 St. Agatha NE-184</u>				
<u>Russets and Longs:</u>				
R. Burbank (std)	1.37	1.95	1.47	3.80
Gem Russet	2.36	1.93	1.50	4.15
R. Legend	2.00	1.47	1.35	3.00
R. Norkotah	1.64	1.71	1.07	4.08
R. Norkotah #3	1.57	1.50	1.21	3.95
R. Norkotah #8	1.42	2.00	1.08	3.65
Shepody	2.13	1.53	1.27	2.65
Umatilla Russet	1.53	2.00	1.38	3.43
A81386-1	1.61	1.48	1.13	4.38
A84118-3	2.20	1.90	1.10	3.38
A84180-8	1.35	2.18	1.18	3.32
A86102-6	1.82	2.64	1.36	3.32
W1099Rus	1.65	1.47	1.29	2.55
W1151Rus	1.24	1.67	1.06	2.92
W1348Rus	1.45	1.00	1.25	4.29
Waller Duncan LSD (k=100)				1.02

¹Skinning and shatter bruise were measured soon on September 23, 1999.

Approximately 10 lbs of tubers that exceeded 1 7/8" diameter were tumbled in a drum with three stones for 1 minute at 15 rpm. Tubers were then rated for skinning and shatter bruise. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected. The tubers were then placed in 45°F storage and rated for internal damage on February 17, 2000 where: 1=all tubers have no visible internal injury and 5=all tubers have severe internal injury.

²Abrasive peel test for biochemical aspects of blackspot bruise potential (see Pavek et al., APJ 62:511-517). All samples were peeled on February 10, 2000. The index presented indicates the severity of discoloration where: 0=no tubers show discoloration and 5=all tubers have severe discoloration.

Maine Table 16. Bruise test and blackspot bruise potential for advanced breeding lines grown at Central Maine (Exeter) and Northern Maine (St. Agatha) - 1999.

Variety	Bruise Test Results ¹		
	Skinning	Shatter	Internal
<u>1999 Exeter, Maine Advanced</u>			
<u>Round-white and Chipping Test:</u>			
Atlantic (std)	1.76	1.86	1.43
FL1533	2.56	2.56	1.11
FL1625	1.14	2.19	1.52
MaineChip	2.14	1.45	1.32
Snowden	1.40	1.36	1.56
AF1668-60	2.14	1.55	1.32
AF1771-2	3.05	1.93	1.36
AF1775-2	3.17	2.33	1.44
AF1845-7	2.42	2.45	1.48
AF1856-1	2.05	2.84	1.84
AF1896-2	2.00	2.42	1.23
AF1921-4	1.29	1.63	1.22
AF1921-9	1.96	1.24	1.10
AF1935-6	3.31	2.69	1.54
AF1949-1	2.30	2.21	1.21
B0178-34	2.04	1.54	2.12
B1083-51	2.74	2.00	1.26
B1240-1	3.17	1.50	1.33
B1415-7	3.83	1.58	2.08
B1429A-3	2.75	4.00	1.42
<u>1999 St. Agatha Advanced</u>			
<u>Round-whites and Reds:</u>			
Atlantic (std)	1.80	2.30	1.40
Katahdin	2.68	3.26	1.16
Kennebec	2.88	1.69	1.00
Superior	1.50	2.72	1.11
AF1291-44	1.79	3.00	1.21
AF1455-20	2.37	3.32	1.11
AF1470-6	2.35	1.75	1.05
AF1569-2	1.82	1.82	1.12
AF1611-9	1.48	2.14	1.00
AF1758-7	1.94	1.67	1.33
AF1763-2	1.76	1.96	1.08
AF1764-3	2.22	2.91	1.61
AF1766-2	1.48	1.90	1.40
AF1846-2	3.18	1.86	1.64
AF1907-6	2.29	2.71	1.19
AF1908-3	2.47	2.63	1.68
AF1937-4	1.65	1.70	1.35
AF1938-3	2.07	3.07	1.50
AF1950-1	1.93	1.87	1.33
B1065-51	1.70	2.55	1.15
B1248-5	1.81	2.62	1.48
B1425-9	1.48	1.57	1.43
B1440-18	1.74	2.26	1.04
B1450-10	1.47	1.26	1.37

Maine Table 16. Continued.

Variety	Bruise Test Results ¹		
	Skinning	Shatter	Internal
B1452-21	2.68	1.86	1.09
B1463-12	2.29	1.41	1.47
B1591-1	1.57	2.52	1.14
B1598-4	1.07	2.26	1.22
B1624-22	1.69	2.50	1.13
B1625-8	2.64	2.21	1.25
SC8801-2	1.21	2.21	1.32
<u>1999 St. Agatha Advanced</u>			
<u>Russets and Longs:</u>			
Russet Burbank (std)	1.56	2.28	1.50
Russet Norkotah	1.47	1.84	1.37
Shepody	1.72	1.94	1.28
AF1156-14	1.13	1.63	1.19
AF1291-113	1.79	1.42	1.42
AF1700-11	1.53	1.82	1.06
AF1753-12	1.94	3.00	1.18
AF1753-16	2.00	2.93	1.47
AF1808-18	2.00	1.81	1.25
AF2001-4	1.53	2.00	1.18
AF2004-2	3.74	1.79	1.16
AF2005-3	2.00	2.11	1.22
AF2015-14	1.86	2.41	1.32
AF2048-3	1.36	1.28	1.16
B1409-2	1.88	2.47	1.47
B1463-1	1.28	2.67	1.56
B1649-8	1.20	4.05	1.70
MN15620	2.63	2.63	1.38

¹Skinning and shatter bruise were measured on September 23, 1999.

Approximately 10 lbs of tubers that exceeded 1 7/8" diameter were tumbled in a drum with three stones for 1 minute at 15 rpm. Tubers were then rated for skinning and shatter bruise. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected. The tubers were then placed in 45°F storage and rated for internal damage on February 17, 2000 where: 1=all tubers have no visible internal injury and 5=all tubers have severe internal injury.

MAINE POTATO BREEDING

Alvin F. Reeves, Garland S. Grounds, and Nena R. Huston.

Early Generations

A total of 48 parent plants were intercrossed in 82 different combinations (27 russet, 25 chipping and 17 resistant to late blight) to produce 50,580 seeds. Greenhouse plantings of 248,655 true seeds yielded 72,355 seedlings from which 51,089 first tubers were harvested. Second tubers were harvested from 14,343 seedlings to be planted in disease screening plots. Round tubers harvested in russet combinations were discarded; misshapen tubers were discarded from all crosses.

A total of 210 new selections were saved from 14,522 single hills (1.4%). From the 244 12-hill plots, 103 (42%) were saved for further testing. Sixty-eight of 98 60-hill plots were selected (69.4%).

Intermediate Generations

Fourth year selections were grown in 200-hill seed increase plots and a replicated yield trial (four replications of 20 hill plots). A total of 100 intermediate and advanced selections were maintained and tested.

Advanced Generations

A summary of the performance of the most advanced selections is as follows:

Chipping Selections:

AF875-15 (AF186-2 x AF84-4, a sibling of MaineChip) has been grown commercially in Virginia. It has specific gravity and chip color very much like Atlantic. Although its yields are 85% of Atlantic, it very rarely shows heat necrosis, making it a good safety-net variety for a portion of the growers acreage. Seed will be available from Robert Bartlett, Littleton, Maine.

AF1424-7 (Somerset x CS7232-4) contains the cold sweetening resistance gene. It yields less than Atlantic, but has good dry matter content. This selection has been included in the Snack Food Association National Chip Trials for 2001.

AF 1668-60 (CS7232-4 op) has excellent chip color from storage and good specific gravity. Its yields are less than Atlantic, especially in the southern states. Several areas have requested seed for yield trials in 2001.

AF 1775-2 (AF 901-1 x EB 8109-1) does not chip well from storage, but has better chip color than Atlantic with similar yield and gravity. It is resistant to net necrosis and has a moderate reaction to late blight, verticillium and common scab. This selection has been entered in the Snack Food Association National Chip Trials.

Fresh Market Selections:

AF1437-1 (AF686-3 x B7168-10) is an early maturing selection and has high yields and attractive tubers, with a netted skin similar to Superior. Low specific gravity gives it a worse cooked texture than Superior, but it has better flavor and color. It has resistance to corky ringspot and net necrosis. Cracking in a commercial trial at H. Smith Packing, Blaine, Maine, has caused enough concern to drop this selection.

AF1565-12 (AF303-5 x Sunrise) is another early maturing selection with very good yields and a nice white skin. Although its specific gravity is less than Superior, its cooked color and texture were rated equal to Superior; flavor was better. It is resistant to golden nematode and net necrosis, and has some tolerance to verticillium, scab, and fusarium.

AF1615-1 (SA8211-6 x Sunrise) is late maturing, like Katahdin, but with higher specific gravity. Good results were obtained in baking and boiling tests in Maine and Pennsylvania. Yields were equal to Atlantic in several test locations. The skin has a yellow tinge, although the flesh is white. It is resistant to net necrosis, verticillium, golden nematode, corky ringspot, and common scab. Commercial seed was produced by Agway, Inc., Presque Isle, Maine.

AF1758-7 (AF303-5 x CF7608-19) has high yields, medium-late maturity, and good appearance. Its major problem is sprouting in storage. It is also hard to vine-kill. Disease resistances include net necrosis, golden nematode, verticillium, and scab.

Russet Selection:

AF1753-16 (CS7981-7 x CF7608-19) is the best russet prospect. It has excellent yield and specific gravity, and its processing quality is within the range of Russet Burbank and Shepody. In McCain Foods trials in 2000, the fry color was not as good as expected, and tubers were judged to be too large. Additional trials are planned for 2001.

Disease Tests:

In cooperation with Drs. David Lambert, Gary Sewell, Bill Brodie, and Robert Goth, all selections from the third field generation were tested for disease resistances.

Forty-three of 146 selections tested were resistant to golden nematode in New York tests.

Scab tests consist of two-hill plots replicated twice. Freshly cut seedpieces are dipped in an inoculum just before planting. The inoculum is prepared by peeling scabby tubers and grinding the peelings in a meat grinder with deionized water. In the acid scab test, 30 of 139 selections tested showed some level of resistance. For common scab, 72 of 179 selections were resistant.

Verticillium plots are four-hill plots with two replications. Freshly-cut seedpieces are dipped in an inoculum prepared from petri-dish-grown verticillium cultures. Of 186 selections tested, 53 were resistant to verticillium.

Late blight tests are also replicated twice, but no inoculum is used. Natural infection had killed the test plots before frost every year except 1975 until this year. In 2000, late infection and early frost made it very difficult to rate the severity of blight damage, and results are too unreliable to report.

Leafroll inoculation is done by means of green peach aphids raised on potato plants infected with leafroll virus. In one plot tubers are harvested and stored at 50F until January, when they are cut and examined for symptoms of net necrosis. Thirty of 179 selections inoculated had net necrosis symptoms. In another test, tubers are harvested, stored, and replanted for observation and ELISA testing the following year. Of the selections inoculated in 1999, two had no leafroll and three others had a low percentage of infection.

Potato aphids were used to transmit PVY to replicated test plots. One of 35 selections inoculated in 1999 had no PVY, and eight others had a low percentage of infection in 2000 plantbacks. MN15620 showed little or no symptoms, but 16 plants were positive with ELISA.

Physiological Disorders:

Fourth year selections are tested for hollow heart, shatter bruise, and blackspot bruise. These tests consist of five-hill plots replicated four times. Ten 8-10 ounce tubers are harvested from each plot, and in addition, all of the tubers over four inches (10.16 cm) in diameter are harvested from the hollow heart test. Seventeen of 46 selections tested had no hollow heart. Bruising is accomplished by dropping a 275 gram weight onto the potato from a height of 12 inches (30.48 cm) for shatter and 6 inches (15.24 cm) for blackspot. The shatter rating is made immediately; the blackspot after 24 hours. Seventeen of 43 selections tested were resistant to blackspot bruising; and 17 of 43 to shatter bruising.

Chip Tests:

Potato chips are visually rated on a scale of 1 = very light to 10 = very dark, where 5 is considered just acceptable. After processing in December, February, and April, from five storage temperatures, 28 entries had better average chip color than Monona (5.2): AF2211-14 (4.1), AF1668-60 (4.2), AF2217-3 (4.2), AF2211-3 (4.4), AF2222-1 (4.4), AF2222-5 (4.4), Snowden (4.4), AF1424-7 (4.5), AF2219-2 (4.5), MaineChip (4.5), AF2219-1 (4.7), CS7232-4 (4.7), Somerset (4.7), AF2206-9 (4.8), AF2220-2 (4.8), AF2222-2 (4.8), AF2206-7 (5.1), AF2211-9 (5.1), AF2215-1 (5.1), AF2222-4 (5.1), SA9502-4 (5.1), AF2082-3 (5.2), AF2207-4 (5.2), AF2211-6 (5.2), AF2211-7 (5.2), AF2271-6 (5.2), ARSW97-1200-1 (5.2), and MSF099-3 (5.2).

Sensory Quality Evaluations:

Baking and boiling tests are conducted by Dr. Alfred Bushway in the Food Sciences Department of the University of Maine. Of five selections, panelists rated one (MN15620) worse than Katahdin in color and overall quality.

French fry quality comparisons were made from samples prepared in the Food Sciences pilot plant and evaluated at Aroostook Farm by Bart Bradbury (McCain Foods), Paul Ocaya, and Al Reeves. Of 26 selections tested, one had significantly better color than Russet Burbank and Shepody, and seven were worse. Three had worse texture, and two worse flavor. Eleven were rated worse overall than BelRus, but only five of these were worse than Russet Burbank. The most outstanding were AF2059-1 and AF2174-1.

Maine Breeding Table 1. Performance of some round white selections grown at Presque Isle, Maine, 2000.

Variety	Color ¹	Shape ²	Maturity ³	Yield, US1 ⁴	Yield, Total	%US1	Days ⁵	Specific Gravity	Appearance ⁶
AF1437-1	W	R	ME	365	381	95	90	1.067	4
AF1470-6	W	R	(M)E	395	402	98	90	1.063	3
AF1565-12	W	RO	E	341	353	96	90	1.076	4
AF1569-2	W	RO	M(E)	358	374	96	90	1.075	3
AF1615-1	LY	R	ME	428	447	96	105	1.083	3
AF1668-60	CN	RO	M	213	218	98	94	1.085	4-
AF1758-7	W	R	ML	437	445	98	105	1.069	4
AF1763-2	WN	OR	ME	464	492	94	105	1.072	4-
AF1775-2	W	OR,fl	M	445	458	97	105	1.097	4-
Superior	WC	R	E	315	324	97	90	1.082	3+
Kennebec	W	O	ME	239	258	92	94	1.079	3-
Katahdin	W	R	M	313	324	96	105	1.079	4

1. Color: W = white; N = netted; C = cream; LY = light yellow.

2. Shape: R = round; O = oblong; fl = flat.

3. Maturity: M = medium; E = early; L = late.

4. Yield in hundred-weight per acre, over 1-7/8" diameter.

5. No. days from planting to top-kill (DAP); 90 DAP = 676 pdays; 94 DAP = 704 pdays; 105 DAP = 773 pdays.

6. Appearance ratings from 1 = very poor to 5 = excellent.

Michigan

D.S. Douches, R.W. Chase, J. Coombs, C. Long, K. Walters, R. Hammerschmidt, W. Kirk, and J. Greyerbiehl

Each year we conduct a series of variety trials to assess advanced selections from the MSU and other potato breeding programs. The objectives of the evaluations are to identify superior varieties for fresh market or for processing and to develop recommendations for the growing of those varieties. The varieties were compared in groups according to the tuber type and skin color and to the advancement in selection. Each season, total and marketable yields, specific gravity, tuber appearance, incidence of external and internal defects, chip color (from field, 42 F and 50 F storage), dormancy (at 50 F), as well as susceptibilities to late blight, common scab, Fusarium dry rot, Erwinia soft rot and blackspot bruising are determined.

Nine field experiments were conducted at the Montcalm Research Farm in Entrican, MI. They were planted in a randomized complete block design with four replications. The plots were 23 feet long and spacing between plants was 12 inches. Inter-row spacing was 34 inches. Supplemental irrigation was applied as needed. This year the fields were fumigated in the fall prior to the field season.

The round white tuber types were divided into chip-processors and tablestock and were harvested at two dates (Date-of-Harvest trial). The other field experiments were the Long, North Central Regional, European, Adaptation and Preliminary trials. In each of these trials, the yield was graded into four size classes, incidence of external and internal defects in > 3.25 in. diameter or 10 oz. potatoes was recorded, and samples for specific gravity, chipping, dormancy, disease tests, bruising and cooking tests were taken. Chip quality was assessed on 25-tuber samples, taking two slices from each tuber. Chips were fried at 365°F. The color was measured visually with the SFA 1-5 color chart. Tuber samples were also stored at 42 F and 50 F for chip-processing out of storage in January and March.

Round White Varieties: Chip-processors

There were 17 entries that were compared at two harvest dates. Atlantic, Snowden and Pike were used as checks. The plot yields were above average in the early harvest (104 days), however; only a moderate yield increase was observed for the second harvest date (140 days). Tuber specific gravity readings

were above average. The results are presented in Tables 1 and 2. In the early harvest trial NY112, MSE018-1, MSF373-8, MSG227-2, Atlantic, MSH094-8 and MSH031-5 had the highest yields of the 17 entries. At the later harvest the same lines were again among the top yielding lines along with P83-11-5. MSF373-8, NY112 and MSE018-1 were also top yielding lines in the on-farm processing trials. MSA091-1 and MSG227-2 are two very promising selections that have scab resistance along with chip-processing ability. Chip-processing quality was high among all the entries in the out-of-the-field samples. Incidence of internal defects were low in 2000, but Atlantic was well above the other entries in the frequency of hollow heart at the early harvest. These results were surprising considering the percentage of oversize tubers in the trials.

Variety Characteristics. *MSA091-1* - a MSU selection for chip-processing with strong scab resistance. Yield and specific gravity over the past four years were comparable to Snowden. It has performed well in other states (Nebraska, Pennsylvania and California). It was in the national SFA and the North Central regional trials. It is also in the CHIPS2001 program. It is being named and released in 2001.

MSE018-1 - a MSU chip-processing selection with high yield potential. It was an outstanding yielder in the MSU and on-farm trials the past four years. Specific gravity is high and it has a good general appearance. Scab tolerance is intermediate and it has a reduced susceptibility to late blight. Chip-processing has been variable in the on-farm trials, but it chip-processed well out of the new MPIC demonstration storage (50°F) in spring 2000.

MSF099-3 - a MSU chip-processing selection. It has high specific gravity, smooth attractive tubers, and excellent chip quality and will chip-process from 45 F cold storage. In 2000 it was one of the best chip-processors in the 42 F MPIC demonstration storage. It yielded well in the on-farm trials, but the large tubers tended to elongate. It is also scab susceptible. This line is in the CHIPS2001 program.

MSF313-3 - a MSU tablestock and chip-processing selection. It has medium vine maturity, and above average yield potential. However, its yield was poor in 2000 and the specific gravity was intermediate. The tubers have few defects and the shape is smooth and round with a bright appearance. It will chip-process out of the field and from storage. In spring 2000 it was one of the best chip-processors in the 42 F MPIC demonstration storage.

MSF373-8 - a MSU tablestock and chip-processing selection. It has a large vine and a late maturity, but tends to size early. Tuber set is low, which leads to a high percentage of large tubers. Specific gravity is intermediate and the tubers have medium-deep eyes. Cooking quality is good.

MSG227-2 - a MSU chip-processing selection with strong scab resistance. It has a specific gravity acceptable for chip-processing, excellent chip quality and cold-chipping potential.

Douches is an associate professor, Chase is a professor emeritus, Long is a research technician, and Walters and Coombs are graduate assistants in the Department of Crop and Soil Sciences, Michigan State University, East Lansing, MI 48824. Hammerschmidt is a professor and Kirk is a visiting assistant professor in the Department of Botany and Plant Pathology, Michigan State University, East Lansing, MI 48824.

The tubers are smooth-shaped with a flattened, round appearance that is attractive. This line is in CHIPS2002. In 2000 it was one of the best chip-processors in the 42 F MPIC demonstration storage. This line will be considered for release in 2002.

MSH094-8 - a MSU chip-processing selection. It has above average yield, high specific gravity and excellent chip quality. It will be entered in the on-farm trials for 2001.

MSNT-1 - a MSU chip-processing selection. It has average yield potential, excellent chip quality and strong resistance to scab. Yield was below average in the MSU trial. It has been in the SFA trials along with the on-farm trials. It performed well in Ontario trials in 1999. It is in the CHIPS2001 program.

NY112 - a Cornell University chip-processing selection. It has high yield potential and was the top yielding line in the 1998 SFA trials. The specific gravity is in the range of 1.080 or lower. Blackspot bruise has been observed in simulated bruise tests in the past two years, but the chip quality is high from out-of-the-field and from storage samples.

Round White Varieties: Tablestock

There were 10 entries that were compared at two harvest dates. Onaway and Superior were used as checks. The plot yields were high in the early harvest (104 days), and a yield increase was observed on some of the lines for the second harvest date (140 days). Tuber specific gravity readings were above average. The results are presented in Tables 3 and 4. In the early harvest trial MSG050-2, MSE221-1, Onaway and Superior were the top yielding lines. Internal quality was good except for some brown centers observed in Superior. In the later harvest MSE028-1, Onaway, MSE228-1 and MSE221-1 were the top yielding lines. Incidence of internal defects was only notable in Superior (brown center) and MSE028-1 (internal brown spot). The most promising selections are MSE221-1, which is a Superior-type selection with scab resistance, MSE149-5Y, which is an attractive, bright-skinned selection with good cooking quality, and MSG274-3, which has strong late blight resistance, attractive oval tubers and good cooking quality.

Variety Characteristics. *MSG274-3* - a MSU tablestock selection. It has strong late blight resistance to US8, but is susceptible to scab. The line has high yield potential and a very high tuber set that can lead to a high percentage of B-size tubers. The tubers are oval with an attractive smooth shape and a bright skin with excellent cooking quality. It is in the CHIPS2001 program and is being named and released in 2001.

MSE149-5Y - a MSU tablestock selection. It has high yield potential and produces attractive round tubers with a bright skin and light yellow flesh. It has been a top yielder in the on-farm trials. It chips out of 45 F cold storage, but has a low specific gravity. In the lab we have used this line for transformation

with the starch gene to raise the specific gravity. These AGPase-transgenic lines were field-tested in 2000.

MSE221-1 - a MSU tablestock selection. It has high yield potential as seen in the MSU and on-farm trials. General appearance is good, but it has a netted appearance similar to Superior. It has strong resistance to scab. It is being considered for release in 2002.

MSG004-3 - a MSU tablestock selection. It has average yield potential and produces bright attractive tubers with good internal quality. It was in the on-farm trials for the first time in 2000.

Long Varieties

Four varieties and eight breeding lines were tested in 2000. Russet Burbank and Russet Norkotah were grown as check varieties. The trial was dug at 140 days from planting and results are shown in Table 5. The yield of the lines ranged widely with Bannock Russet and MSE202-3RUS having high yields and Russet Norkotah and MSE192-8RUS with below average yields. The top two lines were also late maturing and had high levels of scab resistance. Internal defects were low except that MSE202-3RUS and AO87277-6 had greater amounts of hollow heart in the oversize tubers. The lines with the nicest russet type were A9014-2 and MSE192-8RUS. Russet Burbank was the only line to generate an undesirable amount of cull potatoes.

Variety Characteristics. *MSB106-7* - a MSU tablestock selection. It has high yield potential as seen in the on-farm trials, but it performed poorly at MSU. Tubers are oblong-long with a light netting. In 1999 it was the top yielder in Nebraska. Internal quality is excellent and it has a very white flesh.

MSE192-8RUS - a MSU tablestock selection. The tubers have an attractive russetting and shape. The yields in on-farm trials have been disappointing, but it performed well in some on-farm trials in 1999. The vine is small which may make this line uncompetitive in small plot trials. The tuber type suggests that it be considered a replacement for Russet Norkotah. The tubers have a white flesh that does not darken after cooking. It has performed well in taste tests.

MSE202-3RUS - a MSU dual-purpose russet selection. It has a medium-late maturity and high yield potential. Its specific gravity is equivalent to Russet Burbank and the tubers are long with an attractive russet skin. Scab resistance is also high.

North Central Regional Trial

The North Central Trial is conducted in a wide range of environments (11 locations) to provide adaptability data for the release of new varieties from North Dakota, Minnesota, Wisconsin, Michigan and Canada. Nineteen breeding lines and seven varieties were tested in Michigan. The results are

presented in Table 6. The yield was high and specific gravities of the lines were average in 2000. The range of yields was wide. As in 1999, the MSU selections MSE018-1 and MSB107-1 performed well. Other promising lines include chip-processor W1386, the red-skinned selection ND3574-5R, and the round white selection MSF373-8. The scab resistant chip-processing MSU line MSA091-1 performed comparable to Snowden. In general, the russet varieties and lines performed below average.

European/Yellow Trial

Fifteen varieties and advanced selections were tested in 2000. Yukon Gold and Saginaw Gold were used as checks. The results are summarized in Table 7. The yields were above average and varied considerably. The best yielding lines in 2000 were MSE048-2Y and Torridon, but internal defects and late vine maturity make these lines undesirable at the commercial level. Sinora was a strong overall performing line with excellent internal quality and chip-processing potential. Accord had excellent chip color but suffered from internal brown spot. Lady Claire had excellent chip color too, but has low yield potential. Michigan Purple is a new selection with an attractive purple skin and a white flesh with no defects. The yield is above average along with a mid-early vine maturity. MSI201-2PY is a novelty selection with blue skin and yellow flesh with a blue-pigmented pattern. Hollow heart was noted in the oversize tubers of MSG145-1Y and MSE048-2Y in both 2000 and 1999.

Adaptation Trial

Four varieties and 35 advanced breeding lines were evaluated in the Adaptation trial (Table 8). The trial was harvested after 139 days. The highest yielding lines were MSH333-3, MSI050-4, AF1437-1, MSB107-1, NY120 and MSH112-6, however, MSI050-4 and NY120 suffered from internal defects. The best performing scab resistant lines are MSH112-6, MSF060-6 and MSH015-2. The best lines with chip-processing quality are MSH333-3, NDO1496-1, MSH106-2, MSH217-1, MSH360-1, MSH098-2 and MSH123-5. MSH123-5 also had strong resistance to scab, but it had a below average yield. The lines with the best overall tablestock performance are AF1437-1, MSB107-1, and MSE228-11. The best overall chip-processing lines are MSH112-6, MSH015-2, MSH095-4, MSH098-2, MSH360-1 and MSH370-3.

Preliminary Trial

The preliminary trial, harvested at 134 days, is the first replicated trial for evaluating new advanced selections from the MSU potato breeding program. Sixty advanced selections and five check varieties were tested, but some were dropped from Table 9 because of poor tuber quality noted at harvest and grading. Twelve yellow-fleshed lines were tested and three of the lines, MSJ033-10Y, MSJ033-6Y and MSJ049-1Y showed strong resistance to scab. Five lines were included in the trial that had either moderate to strong late blight resistance, of

which MSJ343-1, MSJ307-2, and MSJ456-4 show the most overall promise. Lines with the best chip-processing quality are MSJ080-1, MSJ080-8, MSJ147-1, MSJ059-3, MSJ202-1, MSH018-5 and MSH356-A. Lines with the best potential for the round white tablestock market are MSI582-A, MSJ204-3 and MSJ166-1. MSJ472-4P is a blue-skinned line with white and blue flesh that chip-processes.

Potato Scab Evaluation

Each year a replicated field trial at the MSU Soils Farm is conducted to assess resistance to common and pitted scab. This year we modified the scale from a 1-5 to a 0-5 ranking based upon a combined score for scab coverage and lesion severity. Usually examining one year's data does not indicate which varieties are resistant but it should begin to identify ones that can be classified as susceptible to scab. Our goal is to evaluate important advanced selections and varieties in the study at least three years to obtain a valid estimate of the level of resistance in each line. Table 10A categorizes many of the varieties and advanced selections tested in 2000 at the MSU Soils Farm Scab Nursery. This disease trial is a severe test. The varieties and lines are placed into six arbitrary categories based upon scab infection level and lesion severity. A rating of 0 indicates zero infection. A score of 1.0 indicates a trace amount of infection. A moderate resistance (1.2 – 1.8) correlates with <10% infection. These three categories are good levels of scab tolerance. Susceptible lines have greater than 25% infection with pitted lesions. Scores of 4.0 or greater are found on lines with >50% infection and severe pitted lesions. The check varieties Russet Burbank, Superior, Onaway, Red Pontiac, Yukon Gold, Atlantic and Snowden can be used as references (bolded in Table 10). Table 10 indicates that we have been able to breed numerous lines for the chip-processing and tablestock markets. Most notable are the lines MSA091-1, MSG227-2, MSE202-3RUS and MSE221-1. Scab results are also found in the Trial Summaries (Tables 3-9). Table 10B summarizes the 1998-2000 scab trial results for the varieties and lines that have been tested at least two years in the past four years. These multi-year results give a more stable rating score for the clones tested in these trials.

Late Blight Trial

In 2000 a late blight trial was conducted at the Muck Soils Research Farm. Over 170 entries were evaluated in replicated plots. The field was inoculated late-July and ratings were taken during August. Most lines were highly susceptible to the US-8 genotype of late blight. Included in this trial are the varieties and lines from the MSU trials at the Montcalm Research Farm and lines from the National Late Blight Trial. The results are summarized in Table 11. Lines with the least infection from multi-year testing were LBR8, A90586-1, NY121 (Q237-25), MSG274-3, B0767-2, B0692-4 and Torridon (a Scottish variety). The good agronomic and tuber qualities of MSG274-3 make this selection the strongest late blight resistant line a candidate for commercialization. In addition, many new MSU selections were in this top tier. Included in this group are

MSJ459-4, MSJ457-2 and MSJ456-4, MSJ459-3 and MSJ453-4, which all are progeny of Tollocan; MSJ307-2, MSJ018-2, MSJ319-1, MSI152-A and MSJ319-7, which are progeny of B0718-3; and MSJ343-1 and MSI058-4, which are progeny of Brodick. We find these late blight resistant lines valuable because many of them also have marketable maturity. Tuber late blight resistance is being evaluated on all the selections with foliar late blight resistance.

Blackspot Susceptibility

Increased evaluations of advanced seedlings and new varieties for their susceptibility to blackspot bruising have been implemented in the variety evaluation program. Check samples of 25 tubers were collected (a composite of 4 reps) from each cultivar at the time of grading. A second 25 tuber sample was similarly collected, placed in 50 F storage overnight and then was placed in a hexagon plywood drum and tumbled 10 times to provide a simulated bruise. Both samples were peeled in an abrasive peeler in October and individual tubers were assessed for the number of blackspot bruises on each potato. These data are shown in Tables 12A and 12B. Table 12A summarizes the data for the samples receiving the simulated bruise and Table 12B, the check samples. The bruise data are represented in two ways: percentage of bruise free potatoes and average number of bruises per tuber. A high percentage of bruise-free potatoes is the desired goal; however, the numbers of blackspot bruises per potato is also important. Cultivars which show blackspot incidence greater than Atlantic are approaching the bruise-susceptible rating. In addition, the data is grouped by trial, since the bruise levels can vary between trials. Conducting the simulated bruise on 50 F tubers helps to standardize the bruise testing. However, these results become more meaningful when evaluated over 3 years, reflecting different growing seasons and harvest conditions. The data indicates that bruise levels were average compared to other years. The most bruise resistant lines this year were MSH031-5, MSF313-3, MSE149-5Y, MSE221-1, MSH026-3RUS, MSE192-8RUS, ND3574-5R, Lady Claire, MSG145-1Y, MSH098-2, MSI178-8, MSJ049-1Y, MSJ472-4P and Superior.

key lines with identified tolerance are AO87277-6, P83-11-5 (similar to 1999), MSE192-8RUS, MSJ033-10Y, MSH356-A, MSG004-3, MSH031-5, MSE018-1, NY112, MSG227-2 and MSG274-3.

Post-harvest Disease Evaluation: Fusarium Dry Rot

As part of the post harvest evaluation, resistance to *Fusarium sambucinum* (fusarium dry rot) was assessed by inoculating 8 whole tubers post-harvest from each line in the variety trials. The tubers were held at 20 C for approximately three weeks and then scored for dry rot infection depth and width. These data for average lesion depth for the varieties and lines are ranked and summarized in Table 13. Infection levels within a clone can vary as seen by the multiple tests of the check varieties. Snowden, which has tolerance to fusarium, had infections from 4.9 - 9.6 mm in depth. Superior infections ranged from 16.1 - 16.8 mm, while Onaway infections were from 25.4 - 27.4 mm. No clones showed immunity to dry rot, however, some lines show tolerance at levels equivalent to Snowden. This year's results were surprising in that Superior and Russet Norkotah had much greater infection levels. Some

Michigan Table 1. Round White Chip Potatoes: Early Harvest, Montcalm Research Farm, August 14, 2000 (104 Days).

LINE	CWT/A		PERCENT OF TOTAL ¹					PO	SP GR	CHIP SCORE ³	TUBER QUALITY ²			TOTAL CUT	MAT ⁴	3-YR AVG	
	US#1	TOTAL	US#1	Bs	As	OV	PO				HH	VD	IBS			US#1	CWT/A
NY112	473	505	94	4	67	26	2	1.074	2.0	6	3	0	0	40	3.5	448	
MSF373-8	466	503	92	2	52	40	5	1.075	1.5	6	0	0	0	40	3.3	-	
MSE018-1	445	514	86	11	71	16	3	1.083	1.0	0	0	0	0	40	4.5	377	
MSG227-2	422	465	91	9	81	10	0	1.083	1.0	6	0	0	0	40	3.4	306*	
ATLANTIC	412	462	89	8	75	14	3	1.084	1.0	17	0	1	0	40	3.0	343	
MSH094-8	403	435	93	6	71	21	1	1.082	1.0	1	0	0	0	40	3.3	-	
MSH031-5	403	460	88	10	82	6	3	1.078	1.5	3	0	0	1	40	3.1	-	
P83-11-5	375	464	81	13	75	6	7	1.086	1.0	5	0	2	0	40	2.9	275*	
MSE230-6Y	368	482	76	23	76	0	1	1.087	1.0	0	0	0	0	40	3.6	-	
MSA091-1	352	409	86	10	73	13	4	1.082	1.0	2	0	0	0	40	2.8	277	
MSG015-C	350	408	86	13	77	9	2	1.075	1.5	0	0	0	0	40	2.8	-	
MSF099-3	347	397	87	11	80	7	2	1.081	1.0	0	0	0	0	40	3.0	312	
SNOWDEN	315	363	87	12	80	7	2	1.084	1.0	1	1	0	0	40	2.5	264	
MSE246-5	305	376	81	15	79	2	4	1.090	1.0	1	0	0	0	40	2.8	250	
MSNT-1	294	357	82	17	80	2	0	1.083	1.0	5	0	0	0	40	2.3	257	
PIKE	280	324	86	14	82	4	0	1.081	1.5	0	0	1	0	40	3.3	-	
MSF313-3	268	313	86	11	71	15	4	1.074	1.5	1	0	0	0	40	3.0	265*	
MEAN	369	426						1.081									
LSD (0.05)	53	53						0.004									
* Two-Year Average																	

¹SIZE
B: < 2"
A: 2 - 3.25"
OV: > 3.25"
PO: Pickouts

²QUALITY
HH: Hollow Heart
BC: Brown Center
VD: Vascular Discoloration
IBS: Internal Brown Spot

³CHIP SCORE
Snack Food Assoc. Scale
(Out of the field)
Ratings: 1 - 5
1: Excellent
5: Poor

⁴MATURITY RATING
(taken August 14, 2000)
Ratings: 1 - 5
1: Early (vines completely dead)
5: Late (vigorous vine; some flowering)

Planted May 2, 2000

Michigan Table 2. Round White Chip Potatoes: Late Harvest, Montcalm Research Farm, September 25, 2000 (146 Days).

LINE	CWT/A		PERCENT OF TOTAL ¹					CHIP		TUBER QUALITY ²				TOTAL		3-YR AVG	
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	SCORE ³	HH	VD	IBS	BC	CUT	SCAB	MAT ⁴	US#1 CWT/A
MSE018-1	533	600	89	8	62	26	3	1.086	1.0	3	7	0	0	40	2.2	3.8	458
NY112	520	550	95	4	60	34	1	1.075	1.0	3	3	1	0	40	2.2	3.5	472
MSF373-8	517	550	94	2	37	57	4	1.076	1.5	9	0	0	0	40	2.1	3.3	-
MSH031-5	446	491	91	8	84	7	1	1.079	1.0	0	0	1	1	40	3.8	2.8	-
MSG227-2	439	484	91	8	72	18	1	1.080	1.0	7	0	2	0	40	0.8	3.3	338*
MSH094-8	429	472	91	8	73	18	1	1.079	1.0	2	0	2	1	40	2.0	2.3	-
P83-11-5	428	521	82	8	73	9	9	1.083	1.0	2	5	1	1	40	2.0	2.6	315*
MSE230-6	421	516	82	17	78	4	1	1.089	1.0	1	0	2	1	40	2.2	3.0	-
ATLANTIC	418	481	87	7	59	27	6	1.086	1.0	8	0	2	1	40	3.3	3.0	381
MSA091-1	405	471	86	9	69	17	5	1.081	1.0	0	5	2	2	40	0.5	3.3	296
MSG015-C	401	456	88	10	70	18	2	1.076	1.0	1	1	0	0	40	1.5	2.5	-
MSF099-3	385	435	88	9	71	17	3	1.083	1.0	4	1	0	1	40	2.0	2.5	333
SNOWDEN	371	417	89	11	78	11	0	1.085	1.0	1	8	0	0	40	3.0	2.3	318
PIKE	335	370	90	9	76	14	1	1.087	1.5	0	1	0	0	40	1.8	3.1	-
MSNT-1	318	371	86	13	82	4	1	1.082	1.5	3	0	0	0	40	1.8	2.0	260
MSE246-5	318	394	81	16	74	7	3	1.096	1.0	2	3	0	0	40	2.0	2.5	281
MSF313-3	311	376	83	11	63	20	6	1.075	1.5	2	0	1	2	40	1.8	3.0	315*
MEAN	411	468						1.082									* Two-Year
LSD (0.05)	78	72						0.003									Average

¹SIZE
B: < 2"
A: 2 - 3.25"
OV: > 3.25"
PO: Pickouts

²QUALITY
HH: Hollow Heart
BC: Brown Center
VD: Vascular Discoloration
IBS: Internal Brown Spot

³CHIP SCORE
Snack Food Assoc. Scale
(Out of the field)
Ratings: 1 - 5
1: Excellent
5: Poor

⁴SCAB DISEASE RATING
(From MSU Scab Nursery)
0: No Infection
1: Low Infection <5%
3: Intermediate
5: Highly Susceptible

⁵MATURITY RATING
(taken August 14, 2000)
Ratings: 1 - 5
1: Early (vines completely dead)
5: Late (vigorous vine;
some flowering)

Planted May 2, 2000

Michigan Table 3. Round White Tablestock Potatoes: Early Harvest, Montcalm Research Farm, August 14, 2000 (104 Days).

LINE	CWT/A		PERCENT OF TOTAL ¹					TUBER QUALITY ²					TOTAL		3-YR AVG		
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP	GR	HH	VD	IBS	BC	CUT	MAT ³	US#1	CWT/A
MSG050-2	500	534	94	5	58	35	1	1.077		1	0	0	1	40	3.3	365*	
MSE221-1	472	508	93	3	60	33	4	1.070		3	0	0	0	40	2.8	387	
ONAWAY	462	506	91	6	62	29	3	1.068		0	1	0	0	40	2.5	327	
SUPERIOR	456	488	94	6	87	7	0	1.073		0	0	1	5	40	1.3	314*	
MSE149-5Y	386	449	86	7	65	21	7	1.069		1	0	0	0	40	3.0	307	
MSE028-1	368	405	91	8	80	11	2	1.074		1	0	0	0	40	4.8	-	
MSE228-1	347	498	70	29	69	0	2	1.082		0	0	0	0	40	3.8	320	
MSG141-3	342	413	83	16	80	3	1	1.088		1	0	0	0	40	2.8	-	
MSG004-3	310	336	92	8	76	16	0	1.064		0	0	0	0	40	3.5	-	
MSG274-3	251	430	58	41	57	1	1	1.078		0	0	0	0	40	3.5	170*	
MEAN	389	457						1.074									* Two-Year
LSD (0.05)	48	52						0.003									Average

¹SIZE

B: < 2"

A: 2 - 3.25"

OV: > 3.25"

PO: Pickouts

²QUALITY

HH: Hollow Heart

BC: Brown Center

VD: Vascular Discoloration

IBS: Internal Brown Spot

³MATURITY RATING

(taken August 14, 2000)

Ratings: 1 - 5

1: Early (vines completely dead)

5: Late (vigorous vine;
some flowering)

Planted May 2, 2000

Michigan Table 4. Round White Tablestock Potatoes: Late Harvest, Montcalm Research Farm, September 25, 2000 (146 Days).

LINE	CWT/A		PERCENT OF TOTAL ¹						TUBER QUALITY ²				TOTAL		3-YR AVG	
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP	GR	TUBER QUALITY ²			CUT	SCAB ³	MAT ⁴	US#1 CWT/A
										HH	VD	IBS					BC
MSE028-1	641	707	91	7	60	31	3	1.075	1	0	16	0	40	1.0	4.4	-
ONAWAY	559	603	93	5	57	35	3	1.067	0	0	0	0	40	1.2	1.8	358
MSE228-1	529	669	79	20	74	5	1	1.082	0	1	0	0	40	2.2	3.5	402
MSE221-1	527	569	93	3	58	34	4	1.069	0	0	2	0	40	1.3	1.5	395
MSG050-2	501	540	93	5	63	29	2	1.075	0	0	0	1	40	2.5	1.8	392*
MSE149-5Y	444	514	86	8	55	32	6	1.065	1	0	3	1	40	1.5	2.5	351
SUPERIOR	435	473	92	7	87	5	1	1.071	2	0	0	10	40	1.5	1.0	331*
MSG141-3	431	493	87	12	78	10	1	1.087	0	0	1	0	40	2.5	2.0	-
MSG274-3	418	593	70	27	65	6	3	1.081	5	0	0	0	40	2.5	2.5	298*
MSG004-3	371	399	93	7	63	30	0	1.065	0	0	0	0	40	1.8	3.0	-
MEAN	486	556						1.074								* Two-Year
LSD (0.05)	102	103						0.003								Average

'SIZE	QUALITY		SCAB DISEASE RATING		MATURITY RATING	
	B: < 2"	HH: Hollow Heart	(From MSU Scab Nursery)		(taken August 14, 2000)	
A: 2 - 3.25"		BC: Brown Center	0: No Infection		Ratings: 1 - 5	
OV: > 3.25"		VD: Vascular Discoloration	1: Low Infection <5%		1: Early (vines completely dead)	
PO: Pickouts		IBS: Internal Brown Spot	3: Intermediate		5: Late (vigorous vine; some flowering)	

Planted May 2, 2000

Michigan Table 5. Long White and Russet Trial, Montcalm Research Farm, September 19, 2000 (140 Days).

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	TUBER QUALITY ²				TOTAL		3-YR AVG		
	US#1	TOTAL	US#1	Bs	As	OV	PO		HH	VD	IBS	BC	CUT	SCAB ³	MAT ⁴	US#1	CWT/A
BANNOCK RUSSET	555	602	92	6	40	53	2	1.077	4	0	0	0	0	40	0.3	4.3	-
MSE202-3RUS	499	600	83	12	47	36	5	1.081	17	1	0	0	0	40	0.0	4.1	353*
A087277-6	467	538	87	12	62	25	1	1.083	14	0	0	0	0	40	2.8	2.8	-
A9045-7	466	511	91	7	45	47	2	1.080	2	0	0	0	0	40	2.2	2.8	-
A9014-2	445	514	87	13	68	19	1	1.080	3	1	1	0	0	40	1.0	3.3	-
GEM RUSSET	392	506	77	21	61	16	2	1.080	6	0	0	0	0	40	1.5	3.5	-
RUSSET BURBANK	369	529	70	20	57	13	11	1.079	6	0	0	0	0	40	1.0	2.8	248
A8893-1	369	480	77	18	56	21	5	1.072	8	1	0	0	0	40	0.5	3.3	-
MSB106-7	346	427	81	14	59	22	5	1.065	0	1	0	0	1	40	1.3	1.3	252
MSH026-3RUS	322	455	71	28	64	6	1	1.076	3	6	2	0	0	40	1.0	2.8	263*
RUSSET NORKOTAH	293	439	67	33	60	6	1	1.071	2	0	0	0	0	40	1.8	1.0	200
MSE192-8RUS	274	362	76	22	64	12	2	1.066	1	1	0	0	0	40	2.0	1.8	200
MEAN	423	516						1.077									* Two-Year
LSD (0.05)	69	66						0.003									Average

¹⁻⁴ See Michigan Table 4.

Planted May 2, 2000

Michigan Table 6. North Central Regional Trial, Montcalm Research Farm, September 7, 2000 (128 Days).

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	CHIP SCORE ³	TUBER QUALITY ²				TOTAL		
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC	CUT	SCAB ³ MAT ⁴	
MSE018-1	613	661	93	6	64	29	1	1.089	1.5	4	1	1	0	40	2.2	3.0
MSB107-1	554	590	94	5	66	28	2	1.076	1.0	0	1	0	0	40	2.5	3.5
RED PONTIAC	554	622	89	8	73	16	3	1.064	4.0	18	0	1	0	40	-	3.0
W1386	472	533	89	8	74	15	3	1.083	1.0	3	1	2	1	40	2.5	2.8
NORVALLEY	454	538	84	12	72	12	4	1.077	1.0	2	1	3	0	40	-	2.3
ND3574-5R	450	511	88	10	80	8	2	1.056	3.0	0	1	0	0	40	2.2	1.3
ATLANTIC	445	489	91	7	73	18	2	1.088	1.5	17	0	2	2	40	3.3	2.8
W1368	444	531	84	16	75	8	0	1.088	1.0	3	1	0	5	40	3.0	2.0
MSF373-8	430	444	97	3	50	47	1	1.078	1.5	3	0	0	0	40	2.2	3.5
W1431	425	458	93	7	82	11	0	1.086	1.0	3	0	1	0	40	2.5	2.5
DARK RED NORLAND	425	476	89	8	82	7	3	1.062	3.0	0	0	1	1	40	3.0	1.0
MN17989	410	460	89	7	61	28	4	1.070	3.5	8	0	1	1	30	-	2.6
V0056-1	388	457	85	10	74	11	5	1.076	1.5	26	0	0	2	40	2.0	1.0
MSA091-1	379	433	88	9	69	18	3	1.087	1.0	1	1	0	0	40	0.5	3.0
V0168-3	372	415	90	9	75	15	1	1.067	3.0	3	1	2	0	40	3.0	1.0
ND3196-1R	356	404	88	11	87	1	1	1.068	3.0	0	0	0	5	40	1.5	1.0
SNOWDEN	354	421	84	10	63	21	6	1.081	1.0	3	4	0	0	40	3.0	2.0
MN17993	333	415	80	13	66	15	6	1.065	2.5	0	1	0	0	30	-	1.3
MN18713	329	476	69	28	65	4	3	1.086	1.5	4	0	0	0	30	-	2.6
V0024-6	327	390	84	10	69	15	6	1.065	1.5	11	2	3	0	40	3.0	2.0
V0123-25	324	396	82	15	74	7	4	1.072	1.5	5	1	1	0	40	2.0	1.0
MN18365	308	388	79	17	78	2	4	1.059	3.0	0	0	1	1	30	-	1.6
ND4093-4RUS	307	419	73	24	65	8	3	1.071	2.5	9	0	0	1	40	-	1.5
W1355-1	288	423	68	32	67	1	0	1.085	1.0	0	1	1	0	40	3.0	2.3
RUSSET BURBANK	274	444	62	22	57	5	17	1.078	1.5	4	0	0	0	40	1.0	2.8
RUSSET NORKOTAH	265	382	69	29	61	8	2	1.069	3.0	2	2	0	0	40	2.5	1.3
MEAN	395	468						1.075								
LSD (0.05)	72	71						0.003								

¹⁻⁵ See Michigan Table 2.

Planted May 2, 2000

Michigan Table 7. Yellow Flesh and European Trial, Montcalm Research Farm, September 21, 2000 (142 Days).

LINE	CWT/A		PERCENT OF TOTAL ¹					PO	SP GR	CHIP SCORE ³	TUBER QUALITY ²				TOTAL CUT	SCAB ⁴	MAT ⁵
	US#1	TOTAL	US#1	Bs	As	OV											
MSE048-2Y	684	713	96	4	63	33	1	1.081	-	19	1	1	0	40	2.2	4.1	
TORRIDON	636	771	82	11	71	11	7	1.087	2.5	13	0	13	0	40	3.3	4.3	
ACCORD	529	603	88	12	81	7	1	1.079	1.0	0	0	13	0	40	3.3	2.8	
SINORA	517	598	86	12	76	10	1	1.079	1.5	0	0	0	0	40	3.0	1.8	
MICHIGAN PURPLE	505	540	94	5	65	28	1	1.068	-	0	0	0	0	40	3.0	1.5	
MSG147-3P	462	480	96	3	54	43	0	1.062	1.5	0	0	0	0	40	2.8	3.5	
MSI201-2PY	449	588	76	22	68	8	2	1.075	-	2	0	0	1	40	3.2	3.3	
YUKON GOLD	416	432	96	3	62	34	1	1.080	1.5	4	0	1	1	40	2.0	1.0	
SAGINAW GOLD	389	459	85	14	79	6	1	1.073	1.5	0	1	0	0	40	2.0	1.0	
MSF165-6RY	385	425	91	9	79	12	1	1.074	-	0	0	0	0	40	2.0	1.0	
SW93107	320	499	64	31	62	2	5	1.073	-	0	0	0	0	40	1.5	4.0	
MSG145-1Y	311	341	91	5	69	22	3	1.070	3.5	13	1	0	0	40	1.5	1.5	
LADY CHRISTL	286	453	63	36	61	2	1	1.064	-	0	1	3	7	40	1.3	2.3	
MSE040-6RY	268	375	71	26	70	1	3	1.071	-	0	0	0	0	35	3.0	2.0	
LADY CLAIRE	246	405	61	39	61	0	0	1.080	1.0	0	1	0	0	40	1.3	1.8	
MEAN	427	512						1.074									
LSD (0.05)	103	100						0.003									

¹⁻⁵ See Michigan Table 2.

Planted May 2, 2000

Michigan Table 8. Adaptation Trial, Montcalm Research Farm, September 18, 2000 (139 Days)

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	CHIP SCORE ³	TUBER QUALITY ²				TOTAL		
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC	CUT	SCAB ⁴ MAT ⁵	
MSH333-3	573	613	93	3	53	40	4	1.075	1.0	0	0	2	0	40	4.5	2.5
MSI050-4	556	612	91	8	79	11	1	1.081	-	0	0	0	20	40	3.0	2.5
AF1437-1	537	569	94	5	80	14	1	1.061	1.5	2	0	3	0	40	-	2.3
MSB107-1	523	560	93	4	64	29	3	1.075	1.5	0	1	0	0	40	2.2	3.3
NY120	520	542	96	2	79	17	2	1.085	1.5	0	18	0	0	40	1.5	2.8
MSH112-6	502	566	89	10	76	13	1	1.089	1.5	1	2	0	0	40	1.7	2.3
MSE273-8	490	551	89	7	68	21	4	1.078	2.0	9	3	3	0	40	3.5	3.3
AF1775-2	473	514	92	4	57	35	4	1.079	2.0	19	1	0	0	40	3.0	3.0
AF1615-1	465	530	88	8	66	22	4	1.074	2.0	1	4	3	2	40	3.0	3.0
SUPERIOR	464	492	94	5	87	7	1	1.070	2.0	1	2	2	4	40	1.5	1.0
MSE228-11	462	597	77	22	74	3	1	1.082	2.0	0	1	1	0	40	3.0	3.0
MSI002-3	458	516	89	10	77	11	1	1.079	2.0	1	1	0	0	40	4.0	1.3
ONAWAY	454	499	91	6	73	18	3	1.065	3.5	1	2	1	0	40	1.2	1.5
ATLANTIC	447	490	91	6	69	22	2	1.086	2.0	16	0	2	1	40	3.5	2.5
ND01496-1	442	491	90	7	73	17	3	1.082	1.0	1	2	1	0	40	3.3	3.5
MSI037-4	436	479	91	8	74	17	1	1.085	1.5	2	2	0	2	40	3.0	3.0
MSF001-2	431	469	92	6	81	11	3	1.087	1.5	1	1	1	0	40	3.2	2.8
MSI085-10	430	488	88	9	77	11	3	1.085	1.5	1	7	0	0	40	4.0	3.8
MSF060-6	422	445	95	5	68	27	0	1.080	1.5	3	2	3	2	40	1.5	3.0
MSH015-2	419	469	89	5	70	20	6	1.090	1.5	0	2	3	0	40	1.0	2.5
B1865-2	414	454	91	7	66	25	2	1.067	2.0	1	0	3	0	40	2.8	4.0
MSB076-2	398	453	88	11	82	6	1	1.092	1.5	5	0	0	0	40	1.6	2.8
MSH095-4	387	432	90	9	70	20	2	1.086	1.5	2	3	2	0	40	2.5	3.0
MSH106-2	380	423	90	10	83	7	0	1.092	1.0	0	1	9	3	40	1.0	3.0
MSI055-5	371	440	84	14	80	4	2	1.079	1.5	0	0	8	3	40	4.0	2.0
SNOWDEN	367	418	88	11	77	11	2	1.082	-	2	6	1	0	40	3.0	2.3
MSH067-3	366	404	91	5	67	24	4	1.083	1.5	6	0	4	0	40	3.3	1.8
MSE080-4	363	399	91	8	70	21	1	1.073	2.0	1	3	0	0	40	2.0	2.0
MSG106-5	362	405	90	9	70	19	1	1.071	2.0	1	1	1	0	40	3.5	1.5
MSH217-1	362	438	83	14	71	12	4	1.085	1.0	1	0	5	0	40	3.3	3.3

Michigan Table 8. Continued.

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	CHIP SCORE ³	TUBER QUALITY ²				TOTAL	
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC	CUT	MAT ⁵
MSH098-2	358	376	95	4	64	32	0	1.081	1.0	1	0	1	1	40	2.3
MSH360-1	355	391	91	9	73	18	0	1.086	1.0	2	0	1	0	40	3.0
MSH370-3	342	423	81	17	72	9	2	1.082	1.0	3	1	0	1	40	1.8
MSE030-4	327	393	83	16	66	17	0	1.075	1.5	0	0	0	0	40	2.5
MSI168-2	321	398	81	18	75	6	1	1.085	1.5	0	3	0	0	40	1.8
MSH123-5	312	365	85	11	66	20	4	1.084	1.0	0	8	1	0	40	5.0
AF1668-60	272	303	89	7	73	16	3	1.076	1.0	1	4	0	0	40	1.5
MSF382-2	264	295	90	9	84	6	1	1.066	2.0	0	0	0	0	40	1.3
MEAN	417	466						1.080							
LSD (0.05)	71	68						0.003							

¹⁻⁵ See Michigan Table 2.

Planted May 2, 2000

Michigan Table 9. Preliminary Trial, Montcalm Research Farm, September 13, 2000 (134 Days).

LINE	CWT/A		PERCENT OF TOTAL ¹					CHIP		TUBER QUALITY ²			TOTAL		PEDIGREE		
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	SCORE ³	HH	VD	IBS	BC	CUT		SCAB ⁴	MAT ⁵
MSJ080-1	624	683	91	8	66	25	1	1.074	1.0	3	0	0	0	20	3.2	2.5	C148-A X S440
MSJ033-10Y	586	664	88	11	74	14	1	1.072	-	0	4	3	0	20	1.0	3.0	A097-1Y X PENTA
MSJ582-A	562	624	90	8	71	19	2	1.078	2.5	0	1	0	0	20	2.5	3.0	P88-13-4 X W877
MSJ011-AY	532	622	86	12	80	6	3	1.079	1.5	0	2	0	0	20	2.0	3.0	ACKERSEGEN X ND01496-1
MSJ132-1Y	531	563	94	4	56	39	1	1.083	2.0	2	0	1	0	20	3.0	3.0	LENAPE X ZAREVO
MSJ107-4	530	578	92	7	76	16	2	1.097	1.5	6	1	0	0	20	-	3.5	E230-6 X ZAREVO
MSJ343-1	491	573	86	8	67	19	6	1.087	1.5	10	1	0	0	20	-	4.5	BRODICK X F077-8
ONAWAY	476	536	89	7	71	18	4	1.069	-	0	1	0	0	20	1.2	1.5	
MSJ080-8	472	533	88	10	83	5	1	1.087	1.0	1	0	0	0	20	2.5	2.5	C148-A X S440
MSJ153-2Y	464	496	93	5	54	40	1	1.073	-	4	0	3	1	20	2.0	4.0	NY101 (Y) X PENTA
MSJ163-7R	458	526	87	13	79	8	0	1.102	1.5	1	1	0	0	20	-	3.0	PIKE X ZAREVO
MSJ170-4	440	490	90	7	68	22	3	1.086	1.5	1	3	0	0	20	3.0	3.3	NORVALLEY X E234-3
MSJ168-2Y	431	461	94	6	69	24	0	1.066	1.0	0	1	0	0	20	2.0	3.0	P84-13-12 X ND860-2
MSJ058-22	427	476	90	10	82	8	0	1.085	1.0	9	0	0	0	20	4.0	2.0	BRODICK X F134-1
MSJ156-4Y	425	462	92	7	59	33	1	1.069	-	3	0	0	0	20	2.5	2.5	NY101 (Y) X YUKON GOLD
MSJ204-3	422	453	93	4	67	27	3	1.066	-	0	0	0	0	20	1.8	3.5	SUPERIOR X OP
MSJ060-2	420	445	94	5	70	24	1	1.082	1.5	4	0	0	0	20	3.0	1.5	B0766-3 X W877
MSJ049-1Y	417	467	89	10	72	17	1	1.080	-	0	0	2	0	20	1.8	1.0	B076-2 X YUKON GOLD
SUPERIOR	416	447	93	6	86	7	1	1.073	-	1	0	1	2	20	1.5	1.0	
MSJ177-5R	407	469	87	13	79	8	1	1.070	2.0	0	0	0	0	20	2.5	1.5	REDDALE X ZAREVO
MSJ307-2	407	453	90	5	57	33	6	1.065	-	0	1	0	0	20	1.8	3.5	B0718-3 X C148-1
ATLANTIC	402	453	89	8	70	18	3	1.086	1.0	10	0	0	0	20	3.5	2.5	
MSJ147-1	397	462	86	14	83	3	0	1.083	1.0	1	0	0	0	20	2.3	3.8	ND2417-6 X S440
MSJ166-1	388	436	89	9	74	15	2	1.077	-	0	1	1	0	20	2.8	2.0	PRESTILE X YUKON GOLD
MSJ438-2	387	480	81	16	71	10	3	1.104	-	3	0	0	0	20	-	4.0	PENTA X ZAREVO
MSJ456-4	387	453	85	14	75	11	0	1.085	2.0	4	0	0	0	20	-	3.0	TOLLOCAN X CONESTOGA
MSJ033-6Y	382	429	89	10	65	24	1	1.073	-	0	0	1	0	20	1.0	3.5	A097-1 X PENTA
MSJ170-4	378	465	81	18	78	3	1	1.089	1.5	2	0	0	0	20	2.8	2.5	P84-13-12 X S440
MSJ316-3	365	416	88	12	74	14	0	1.082	1.5	2	0	3	0	20	-	4.0	B0718-3 X PIKE
MSJ059-3	359	445	81	19	77	4	0	1.095	1.0	0	1	1	0	20	-	3.0	B0766-3 X S440
PIKE	353	387	91	8	75	16	1	1.089	1.0	0	0	3	0	20	1.5	3.0	
MSJ202-1	353	450	78	14	77	1	7	1.094	1.0	0	0	0	0	20	2.0	3.5	SPARTAN PEARL X ZAREVO

Michigan Table 9. Continued.

LINE	CWT/A		PERCENT OF TOTAL ¹					CHIP		TUBER QUALITY ²			TOTAL		PEDIGREE
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP	SG	SCORE	HH	VD	IBS	BC	
MSH018-5	350	465	75	23	75	1	2	1.093		1.0	0	0	0	0	BRODICK X MSC127-3
MSH380-3Y	348	393	89	11	74	15	1	1.086		1.0	6	0	0	1	GRETA X C127-3
MSH356-A	346	385	90	10	79	11	0	1.086		1.0	2	1	1	0	PIKE X C135-5
MSH222-58	342	413	83	13	74	9	4	1.068		1.5	1	0	0	0	MSA091-1 X HLG75-297
MSI201-2PY	341	544	63	36	61	2	2	1.081		-	0	0	1	0	ERNESTOLZ X E234-7
SNOWDEN	340	405	84	15	76	8	1	1.082		1.0	0	0	0	0	3.0
MSJ112-5	336	377	89	11	82	7	0	1.086		1.0	0	0	0	0	E250-2 X S440
MSI137-CY	330	380	87	13	71	17	0	1.084		1.5	5	0	1	0	GRETA X F077-8
MSJ212-2	318	426	75	25	70	4	0	1.080		1.5	0	0	6	0	S438 X ZAREVO
MSJ452-4Y	317	483	66	23	61	5	11	1.094		-	0	4	0	0	STOBRAWA X YUKON GOLD
MSI026-A	313	393	80	19	78	1	1	1.081		1.0	0	0	0	0	B076-2 X C135-4
MSJ494-1	312	393	79	20	79	1	1	1.095		1.0	3	0	1	0	ZAREVO X PIKE
MSJ472-4P	303	417	73	27	68	5	1	1.088		1.0	3	0	0	1	ZAREVO X A199-1P
MSJ482-2	259	386	67	30	65	2	3	1.101		1.5	0	0	2	0	ZAREVO X C127-3
MEAN	405	473						1.083							
LSD (0.05)	116	107						0.005							

¹SIZE

B: < 2"

A: 2 - 3.25"

OV: > 3.25"

PO: Pickouts

IBS: Internal Brown Spot

Planted May 2, 2000

²QUALITY

HH: Hollow Heart

BC: Brown Center

VD: Vascular Discoloration

IBS: Internal Brown Spot

³CHIP SCORE

Snack Food Assoc. Scale

(Out of the field)

Ratings: 1 - 5

1: Excellent

5: Poor

⁴SCAB DISEASE RATING

(From MSU Scab Nursery)

0: No Infection

1: Low Infection <5%

3: Intermediate

5: Highly Susceptible

⁵ MATURITY RATING

(taken August 14, 2000)

Ratings: 1 - 5

1: Early (vines completely dead)

5: Late (vigorous vine; some flowering)

Michigan Table 10A. 2000 Scab Disease Trial, Scab Nursery, East Lansing, MI.

LINE	RATING	LINE	RATING	LINE	RATING	LINE	RATING	LINE	RATING	LINE	RATING
MSE202-3RUS	0.0	MSB076-2	1.6	MSF373-8	2.1	AF1615-1	3.0	TORRIDON	3.3		
BANNOCK RUS.	0.3	MSH112-6	1.7	A9045-7	2.2	AF1775-2	3.0	MSE273-8	3.5		
A893-1	0.5	MSF313-3	1.8	MSB107-1	2.2	DK. RED NORLAND	3.0	MSG106-5	3.5		
MSA091-1	0.5	MSG004-3	1.8	MSE018-1	2.2	MICHIGAN PURPLE	3.0	MSH222-58	3.5		
MSG227-2	0.8	MSJ049-1Y	1.8	MSE030-4	2.2	MSE040-6RY	3.0	MSH031-5	3.8		
A9014-2	1.0	MSJ204-3	1.8	MSE048-2Y	2.2	MSE228-11	3.0	MSI002-3	4.0		
MSE028-1	1.0	MSJ307-2	1.8	MSE228-1	2.2	MSH018-5	3.0	MSI055-5	4.0		
MSF382-2	1.0	MSJ482-2	1.8	MSE230-6	2.2	MSH098-2	3.0	MSI058-22	4.0		
MSH015-2	1.0	MSNT-1	1.8	ND3574-5R	2.2	MSH360-1	3.0	MSI085-10	4.0		
MSH026-3RUS	1.0	MSE080-4	2.0	NY112	2.2	MSH370-3	3.0	MSJ452-4Y	4.0		
MSH106-2	1.0	MSE192-8RUS	2.0	MSJ147-1	2.3	MSI037-4	3.0	MSH333-3	4.5		
MSH123-5	1.0	MSE246-5	2.0	MSJ212-2	2.3	MSI050-4	3.0				
MSH356-A	1.0	MSF099-3	2.0	MSG050-2	2.5	MSI170-4	3.0				
MSJ033-10Y	1.0	MSF165-6RY	2.0	MSG141-3	2.5	MSJ060-2	3.0				
MSJ033-6Y	1.0	MSH094-8	2.0	MSG274-3	2.5	MSJ132-1Y	3.0				
RUS. BURBANK	1.0	MSI011-AY	2.0	MSH095-4	2.5	SINORA	3.0				
ONAWAY	1.2	MSI137-CY	2.0	MSI582-A	2.5	SNOWDEN	3.0				
LADY CHRISTL	1.3	MSJ112-5	2.0	MSJ080-8	2.5	V0024-6	3.0				
LADY CLAIRE	1.3	MSJ153-2Y	2.0	MSJ156-4Y	2.5	V0168-3	3.0				
MSB106-7	1.3	MSJ168-2Y	2.0	MSJ177-5R	2.5	W1355-1	3.0				
MSE221-1	1.3	MSJ202-1	2.0	MSJ472-4P	2.5	W1368	3.0				
AF1668-60	1.5	P83-11-5	2.0	RUS. NORKOTAH	2.5	MSF001-2	3.2				
GEM RUSSET	1.5	SAGINAW GOLD	2.0	W1386	2.5	MSI201-2PY	3.2				
MSE149-5Y	1.5	V0056-1	2.0	W1431	2.5	MSJ080-1	3.2				
MSF060-6	1.5	V0123-25	2.0	A087277-6	2.8	ACCORD	3.3				
MSG015-C	1.5	YUKON GOLD	2.0	B1865-2	2.8	ATLANTIC	3.3				
MSG145-1Y	1.5			MSG147-3P	2.8	MSH067-3	3.3				
ND3196-1R	1.5			MSJ166-1	2.8	MSH217-1	3.3				
NY120	1.5			MSJ170-4	2.8	MSH380-3Y	3.3				
PIKE	1.5					MSI168-2	3.3				
SUPERIOR	1.5					ND01496-1	3.3				
SW93107	1.5										

SCAB DISEASE RATING (From MSU Scab Nursery) : 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible

Michigan Table 10B. Scab Disease Trial, Three-year Summary, Scab Nursery, East Lansing, MI.

LINE	1998 ¹	1999 ¹	2000 ²	LINE	1998	1999	2000
ATLANTIC	3.3	3.0	3.3	MSG015-C	1.0	1.2	1.5
MICHIGAN PURPLE	-	3.0	3.0	MSG050-2	4.0	2.0	2.5
MSA091-1	1.5	1.0	0.5	MSG145-1Y	3.0	2.0	1.5
MSB076-2	1.2	1.5	1.6	MSG147-3P	3.0	2.5	2.8
MSB106-7	2.3	1.3	1.3	MSG227-2	1.0	1.1	0.8
MSB107-1	1.0	1.5	2.2	MSG274-3	3.3	3.5	2.5
MSE018-1	3.0	3.0	2.2	MSH031-5	2.0	2.0	3.8
MSE028-1	1.8	1.0	1.0	MSH067-3	2.7	1.8	3.3
MSE040-6RY	2.5	2.0	3.0	MSH098-2	1.3	2.5	3.0
MSE048-2Y	1.0	2.0	2.2	MSH106-2	1.0	1.0	1.0
MSE149-5Y	1.8	2.0	1.5	MSNT-1	1.8	1.5	1.8
MSE192-8RUS	1.0	1.2	2.0	NY112	1.8	1.5	2.2
MSE202-3RUS	1.0	1.2	0.0	ONAWAY	1.5	1.2	1.2
MSE221-1	1.5	1.2	1.3	P83-11-5	2.0	1.7	2.0
MSE228-1	2.8	3.0	2.2	PIKE	1.0	-	1.5
MSE228-11	3.2	3.0	3.0	RED PONTIAC	3.3	3.8	-
MSE230-6	2.3	1.5	2.2	RUSSET BURBANK	1.0	1.0	1.0
MSE246-5	1.0	2.0	2.0	RUSSET NORKOTAH	2.0	2.0	2.5
MSF001-2	4.0	3.5	3.2	SAGINAW GOLD	2.0	1.3	2.0
MSF099-3	3.7	2.7	2.0	SNOWDEN	3.5	3.0	3.0
MSF313-3	2.7	2.7	1.8	SUPERIOR	1.2	1.0	1.5
MSF373-8	2.3	1.7	2.1	W1355-1	3.0	2.8	3.0
MSG004-3	1.0	3.0	1.8	YUKON GOLD	2.7	2.5	2.0

¹SCAB DISEASE RATING

- 1: Practically No Infection
2: Low Infection
3: Avg. Susceptibility (i.e. Atlantic)
4: High Susceptibility
5: Severe Susceptibility

²SCAB DISEASE RATING

- 0: No Infection
1: Low Infection <5%
3: Intermediate
5: Highly Susceptible

Michigan Table 11. Late Blight Variety Trial, Muck Soils Research Farm.

Inoculated July 26, 2000

Rating based on a 39-day evaluation period

RAUDPC Max = 1.000

LINE ²	RAUDPC ¹ LSMEAN	LINE	RAUDPC LSMEAN
LBR8	0.003	Umatilla	0.176
MSG274-3	0.007	MSJ107-4	0.182
MSJ459-4	0.009	A12039-06	0.183
MSJ457-2	0.009	Russet Burbank	0.186
MSJ456-4	0.010	MSJ494-1	0.193
B0767-2	0.013	MSJ324-2	0.193
MSJ307-2	0.014	NY103	0.195
Q237-25	0.017	MSH123-5	0.199
Torridon	0.018	MSJ438-2	0.201
MSJ459-3	0.019	Snowden2	0.234
MSJ018-2	0.019	Bannock Russet	0.257
MSJ319-7	0.023	Ranger Russet	0.267
B0692-4	0.025	Yukon Gold	0.278
MSJ453-4	0.025	NorDonna	0.278
MSJ343-1	0.030	Superior	0.278
MSJ319-1	0.031	Russet Norkotah	0.281
A90586-1	0.032	Russet Burbank	0.288
B1865-2	0.033	Atlantic	0.298
MSI152-A	0.043	Snowden	0.312
MSJ458-2	0.044	DR Norland	0.322
MSJ456-2	0.045	NorValley	0.323
MSJ317-1	0.050	Lady Claire	0.332
MSJ464-1	0.068	Sinora	0.337
MSI058-4	0.086	Atlantic	0.341
LBR7	0.136	Russet Norkotah	0.352
MSJ468-1	0.144	Saginaw Gold	0.354
MSI050-4	0.151	Lady Christl	0.360
MSJ334-1Y	0.156	Pike	0.365
LBR1R2R3R4	0.157	Michigan Purple	0.408
ND02438-7R	0.170	Onaway	0.428
C086218-2	0.171	Superior	0.442
LBR5	0.171		
LSD (0.05)	0.080		

¹ Ratings indicate the RAUDPC (Relative Area Under the Disease Progress Curve) over the entire plot.

² 214 varieties and breeding lines were tested in all. For brevity purposes, only selected varieties and breeding lines with a RAUDPC value greater than 0.200 are listed.

Michigan Table 12A. 2000 Blackspot Bruise Susceptibility Test, Simulated Bruise Samples*.

VARIETY	NUMBER OF SPOTS PER TUBER						TOTAL TUBERS	PERCENT	AVERAGE SPOTS/TUBER
	0	1	2	3	4	5+		BRUISE FREE	
ROUND WHITES: CHIP									
MSH031-5	18	5					23	78	0.217
MSE230-6	18	5	1	1			25	72	0.400
MSF313-3	16	8		1			25	64	0.440
MSF373-8	13	11	1	1			26	50	0.615
P83-11-5	14	8	1	2			25	56	0.640
MSG227-2	10	13	2				25	40	0.680
MSF099-3	9	13	2	1			25	36	0.800
MSH094-8	8	11	5				24	33	0.875
NY112	8	7	6	2			23	35	1.087
ATLANTIC	9	5	5	3			22	41	1.091
SNOWDEN	6	11	7	1			25	24	1.120
MSA091-1	9	9	3	1	3		25	36	1.200
PIKE	6	9	7	3			25	24	1.280
MSE018-1	1	10	12	2			25	4	1.600
MSNT-1	3	7	8	4	2	1	25	12	1.920
MSG015-C		9	8	8	1		26	0	2.038
MSE246-5	2	5	7	4	4	2	24	8	2.375
ROUND WHITES: TABLE									
MSE149-5Y	16	7					23	70	0.304
MSE221-1	18	6	1				25	72	0.320
MSG141-3	14	9	1	1			25	56	0.560
MSE028-1	15	6	3	1			25	60	0.600
SUPERIOR	15	8	2		1		26	58	0.615
ONAWAY	15	6	5				26	58	0.615
MSE228-1	12	10	3				25	48	0.640
MSG050-2	11	12	4	1			28	39	0.821
MSG004-3	9	7	7	2			25	36	1.080
MSG274-3	3	10	10	2			25	12	1.440
LONG WHITES and RUSSETS									
MSH026-3RUS	15	9	1				25	60	0.440
MSE192-8RUS	15	7	3				25	60	0.520
BANNOCK RUSSET	14	7	2	2			25	56	0.680
RUSSET NORKOTAH	10	11	2	1			24	42	0.750
MSE202-3RUS	9	12	4				25	36	0.800
A087277-6	7	13	3	1			24	29	0.917
A9014-2	8	13	3		1		25	32	0.920
A8893-1	8	8	7	1			24	33	1.042
RUSSET BURBANK	8	8	6	3			25	32	1.160
GEM RUSSET	3	11	7	3			24	13	1.417
A9045-7	5	8	9	2	1		25	20	1.440
MSB106-7	5	5	8	4	2		24	21	1.708

Michigan Table 12A. Continued.

NUMBER OF SPOTS PER TUBER							TOTAL	PERCENT	
VARIETY	0	1	2	3	4	5+	TUBERS	BRUISE FREE	AVERAGE SPOTS/TUBER
<u>NORTH CENTRAL REGIONAL TRIAL</u>									
ND3574-5R	24	2	1				27	89	0.148
V0024-6	21	4	1				26	81	0.231
DR NORLAND	19	6					25	76	0.240
VO168-3	17	9					26	65	0.346
MN17993	16	3				1	20	80	0.350
RUSSET NORKOTAH	18	4	3				25	72	0.400
RED PONTIAC	15	8	1				24	63	0.417
NORVALLEY	11	12	1				24	46	0.583
MSF373-8	12	10	1	1			24	50	0.625
V0056-1	15	4	6				25	60	0.640
ND3196-1R	14	9	3	1			27	52	0.667
MN18365	9	6	2	1			18	50	0.722
RUSSET BURBANK	9	11	3	2			25	36	0.920
W1431	13	7	7			1	28	46	0.929
ND4093-4RUS	11	6	7	2			26	42	1.000
SNOWDEN	8	12	3	1		1	25	32	1.040
ATLANTIC	7	10	5	3			25	28	1.160
MSA091-1	4	15	5	1		1	26	15	1.269
VO123-25	8	8	7	2		1	26	31	1.269
MN17989	3	7	5	2	1		18	17	1.500
MSB107-1	5	10	4	3	3		25	20	1.560
W1368	4	9	5	3	2		23	17	1.565
MSE018-1	4	7	8	8	2		29	14	1.897
W1355-1	1	7	7	5	3		23	4	2.087
MN18713	2	3	7	2	3	1	18	11	2.222
W1386		1	3	4	1	4	13	0	3.308
<u>YELLOW FLESH and EUROPEAN TRIAL</u>									
MSG147-3P	20	2	1				23	87	0.174
LADY CLAIRE	19	6					25	76	0.240
MSG145-1Y	18	6					24	75	0.250
MSF165-6RY	20	5	1				26	77	0.269
MSE040-6RY	20	3	2				25	80	0.280
LADY CRYSTAL	16	6	1				23	70	0.348
YUKON GOLD	17	4	3				24	71	0.417
MSI201-2PY	14	10	1				25	56	0.480
SINORA	11	6	1	1			19	58	0.579
MICHIGAN PURPLE	9	12	4				25	36	0.800
SAGINAW GOLD	7	13	6	1			27	26	1.037
ACCORD	6	9	8	2			25	24	1.240
MSE048-2Y	5	10	8	2			25	20	1.280
TORRIDON	4	6	9	6	1		26	15	1.769
SW93107	2	11	5	4	3		25	8	1.800

Michigan Table 12A. Continued.

NUMBER OF SPOTS PER TUBER							TOTAL	PERCENT	AVERAGE
VARIETY	0	1	2	3	4	5+	TUBERS	BRUISE FREE	SPOTS/TUBER
ADAPTATION TRIAL									
MSH098-2	21	1					22	95	0.045
MSI178-8	22	3					25	88	0.120
AF1668-60	19	3					22	86	0.136
MSE228-11	21	3	1				25	84	0.200
SUPERIOR	20	4	1				25	80	0.240
MSI002-3	17	8					25	68	0.320
MSE080-4	19	4	2				25	76	0.320
MSI050-4	18	4			1		23	78	0.348
MSH015-2	17	5	2				24	71	0.375
MSH067-3	13	9	2				24	54	0.542
MSF382-2	16	4	5				25	64	0.560
MSH370-3	10	4	3				17	59	0.588
MSH217-1	12	7	3				22	55	0.591
MSI055-5	14	8	2	1			25	56	0.600
AF1437-1	14	5	3	1			23	61	0.609
MSH106-2	14	7	3	1			25	56	0.640
MSI037-7	13	7	3		1		24	54	0.708
MSH112-6	14	6	3	2			25	56	0.720
ND01496-1	11	9	2		1		23	48	0.739
ONAWAY	12	9	1	1	1		24	50	0.750
MSE030-4	12	8	4	1			25	48	0.760
AF1615-1	9	11	2	1			23	39	0.783
MSF001-2	9	11	4				24	38	0.792
MSI085-10	8	10	4				22	36	0.818
MSB076-2	10	8	5	1			24	42	0.875
MSH333-3	9	10	4	1			24	38	0.875
B1865-2	12	6	5	1		1	25	48	0.960
AF1775-2	11	6	4	2	1		24	46	1.000
MSE273-8	12	6	3	3	1		25	48	1.000
NY120	6	13	3	2			24	25	1.042
MSH360-1	6	14	2	2	1		25	24	1.120
MSG106-5	8	8	7	2			25	32	1.120
MSH123-5	10	5	7	4			26	38	1.192
MSI168-2	8	8	5	4			25	32	1.200
ATLANTIC	8	8	4	2	2		24	33	1.250
SNOWDEN	6	7	11		1		25	24	1.320
MSB107-1	5	10	5	1	1	1	23	22	1.391
MSH095-4	5	8	5	3	3	1	25	20	1.760
MSF060-6	1	4	8	5	3	2	23	4	2.478
PRELIMINARY TRIAL									
MSJ168-2Y	20						20	100	0.000
MSJ049-1Y	10	5					15	67	0.333
MSJ156-4Y	12	5	3				20	60	0.550
SUPERIOR	13	4	2	1			20	65	0.550
MSJ472-4P	11	5	4				20	55	0.650
MSJ033-6Y	11	4	4	1			20	55	0.750
MSI201-2PY	5	14	1				20	25	0.800
MSJ170-4	9	6	2	2			19	47	0.842

Michigan Table 12A. Continued.

VARIETY	NUMBER OF SPOTS PER TUBER						TOTAL TUBERS	PERCENT	AVERAGE SPOTS/TUBER
	0	1	2	3	4	5+		BRUISE FREE	
MSJ153-2Y	3	4	3				10	30	1.000
MSJ204-3	9	6	3	1		1	20	45	1.000
MSJ316-3	5	10	3	2			20	25	1.100
MSJ154-16A	4	2	1	2			9	44	1.111
MSJ033-10Y	6	6	7	1			20	30	1.150
MSI587-A	9	5	2	3		1	20	45	1.150
MSJ080-1	6	6	5	1		1	19	32	1.263
MSH186-13Y	5	6	6	2			19	26	1.263
MSJ069-3	8	3	5	1	2		19	42	1.263
MSH222-58	5	5	9	1			20	25	1.300
MSJ307-2	7	3	6	5	1		22	32	1.545
MSJ112-5	7	2	5	5	1		20	35	1.550
ONAWAY	4	5	6	5			20	20	1.600
MSJ202-1	3	4	8	3			18	17	1.611
MSJ060-2	2	5	9	4			20	10	1.750
MSJ059-3	5	6	3	3	1	2	20	25	1.750
MSJ343-1	2	6	6	4	1		19	11	1.789
MSJ494-1	4	6	3	2	4		19	21	1.789
MSJ166-1	1	9	5	3	2		20	5	1.800
MSJ080-8	4	6	4	3	1	2	20	20	1.850
MSJ147-1	7	2	5	5	1	2	22	32	1.864
MSJ163-7R	1	7	5	5	1		19	5	1.895
MSH308-3Y	1	5	6	8			20	5	2.050
MSJ132-1Y	4	2	7	2	2	2	19	21	2.105
ATLANTIC	2	4	7	4	2	1	20	10	2.150
MSJ212-2	1	5	6	6	2		20	5	2.150
MSJ482-2		5	8	6	1		20	0	2.150
MSJ107-4	2	3	7	3	1	2	18	11	2.222
MSI058-2	2	3	9	3		3	20	10	2.250
MSH018-5		4	9	4	3		20	0	2.300
MSI011-A		4	6	7	2		19	0	2.368
SNOWDEN	1	4	6	4	1	3	19	5	2.474
MSJ452-4Y	1	3	7	4	3	2	20	5	2.550
MSJ438-2	1	5	3	4	4	2	19	5	2.579
PIKE	2	2	4	8	1	3	20	10	2.650
MSI170-4	2	2	6	4	1	5	20	10	2.750
MSI137-CY	2	1	6	2	1	6	18	11	2.944
MSH356-A		2	3	6	3	3	17	0	3.118
MSI058-38	1	3	2	4	3	7	20	5	3.300
MSI026-A		4	2	4	2	7	19	0	3.316
MSJ456-4	1	1	4	2	3	8	19	5	3.526
MSI102-E			2	4	4	10	20	0	4.100
SNACK FOOD ASSOCIATION TRIAL									
NY112	21	3					24	88	0.125
FL1867	21	4					25	84	0.160
AF1668-60	21	4					25	84	0.160
SNOWDEN	23	6	1				30	77	0.267
W1431	20	6	3				29	69	0.414

Michigan Table 12A. Continued.

VARIETY	NUMBER OF SPOTS PER TUBER						TOTAL TUBERS	PERCENT BRUISE FREE	AVERAGE SPOTS/TUBER
	0	1	2	3	4	5+			
B0766-3	16	9	1				26	62	0.423
ATLANTIC	16	9	1				26	62	0.423
MSA091-1	16	8		1			25	64	0.440
MSNT-1	16	7	1	1			25	64	0.480
MSE246-5	9	5	2				16	56	0.563
NY120	14	7	4				25	56	0.600
AF1775-2	12	10	3				25	48	0.640

* A-size tuber samples were collected at harvest, held at 50 F at least 12 hours, and placed in a six-sided plywood drum and rotated ten times to produce simulated bruising. Samples were abrasive-peeled and scored on October 31, 2000. The table is presented in descending order of average number of spots per tuber.

Michigan Table 12B. 2000 Blackspot Bruise Susceptibility Test, Check Bruise Samples*.

VARIETY	NUMBER OF SPOTS PER TUBER						TOTAL TUBERS	PERCENT	AVERAGE SPOTS/TUBER
	0	1	2	3	4	5+		BRUISE FREE	
<u>ROUND WHITES: CHIP</u>									
MSNT-1	22	3					25	88	0.120
MSH094-8	21	4					25	84	0.160
P83-11-5	21	3	1				25	84	0.200
MSE230-6	18	5					23	78	0.217
MSF099-3	17	5					22	77	0.227
MSH031-5	17	5	1				23	74	0.304
MSF373-8	19	6	1				26	73	0.308
SNOWDEN	18	7	1				26	69	0.346
MSF313-3	17	6	2				25	68	0.400
MSA091-1	15	8	2				25	60	0.480
MSE246-5	14	7	4				25	56	0.600
MSG227-2	13	9	3				25	52	0.600
ATLANTIC	13	6	6				25	52	0.720
MSE018-1	9	13	3				25	36	0.760
NY112	11	9	4	1			25	44	0.800
PIKE	12	8	3	2	1		26	46	0.923
MSG015-C	4	8	7	6			25	16	1.600
<u>ROUND WHITES: TABLE</u>									
MSG141-3	22	2					24	92	0.083
SUPERIOR	22	3					25	88	0.120
MSE228-1	20	3					23	87	0.130
MSE221-1	19	6					25	76	0.240
MSE149-5Y	22	2	1	1			26	85	0.269
MSG004-3	17	7	1				25	68	0.360
ONAWAY	19	4	1	1			25	76	0.360
MSG274-3	16	7	1	1			25	64	0.480
MSE028-1	12	13					25	48	0.520
MSG050-2	15	5	4				24	63	0.542
<u>LONG WHITES and RUSSETS</u>									
A8893-1	27						27	100	0.000
GEM RUSSET	24						24	100	0.000
MSE192-8RUS	25						25	100	0.000
RUS. NORKOTAH	25						25	100	0.000
A087277-6	27	1					28	96	0.036
MSE202-3RUS	24	1					25	96	0.040
RUSSET BURBANK	23	1					24	96	0.042
BANNOCK RUSSET	22	1					23	96	0.043
MSH026-3RUS	18	1					19	95	0.053
A9014-2	20	2					22	91	0.091
A9045-7	23	4					27	85	0.148
MSB106-7	15	7	3				25	60	0.520

Michigan Table 12B. Continued.

VARIETY	NUMBER OF SPOTS PER TUBER						TOTAL TUBERS	PERCENT	AVERAGE
	0	1	2	3	4	5+		BUISE FREE	SPOTS/TUBER
<u>NORTH CENTRAL REGIONAL TRIAL</u>									
DR NORLAND	26						26	100	0.000
MN17993	20						20	100	0.000
MSA091-1	25						25	100	0.000
ND3574-5R	26						26	100	0.000
ND4093-4RUS	26						26	100	0.000
ND3196-1R	25						25	100	0.000
RUS. NORKOTAH	25						25	100	0.000
V0056-1	24						24	100	0.000
W1431	25						25	100	0.000
V0024-6	25	1					26	96	0.038
NORVALLEY	24	1					25	96	0.040
RUSSETBURBANK	24	1					25	96	0.040
MN17989	19	1					20	95	0.050
MN18365	19	1					20	95	0.050
MSE018-1	24	2					26	92	0.077
W1355-1	24	2					26	92	0.077
SNOWDEN	23	2					25	92	0.080
MSF373-8	22	3					25	88	0.120
RED PONTIAC	22	3					25	88	0.120
W1386	17	3					20	85	0.150
V0168-3	20	5					25	80	0.200
ATLANTIC	21	3	2				26	81	0.269
MN18713	14	3	1				18	78	0.278
W1368	18	7					25	72	0.280
MSB107-1	21	4	2				27	78	0.296
V0123-25	17	4	4				25	68	0.480
<u>YELLOW FLESH and EUROPEAN TRIAL</u>									
LADY CLAIRE	25						25	100	0.000
MSF165-6RY	25						25	100	0.000
MSG145-1Y	25						25	100	0.000
LADY CRYSTL	25	1					26	96	0.038
MSI201-2PY	25	1					26	96	0.038
SINORA	25	1					26	96	0.038
YUKON GOLD	24	1					25	96	0.040
ACCORD	23	1					24	96	0.042
MSG147-3P	23	1					24	96	0.042
SW93107	20	1					21	95	0.048
MICHIGAN PURPLE	24			1			25	96	0.120
MSE040-6RY	18	3					21	86	0.143
TORRIDON	19	4					23	83	0.174
MSE048-2Y	19	2	1				22	86	0.182
SAGINAW GOLD	19	5					24	79	0.208

Michigan Table 12B. Continued.

NUMBER OF SPOTS PER TUBER							PERCENT		
VARIETY	0	1	2	3	4	5+	TOTAL TUBERS	BRUISE FREE	AVERAGE SPOTS/TUBER
ADAPTATION TRIAL									
MSE228-11	21						21	100	0.000
MSE273-8	22						22	100	0.000
MSH098-2	25						25	100	0.000
MSH106-2	25						25	100	0.000
MSI002-3	20						20	100	0.000
MSI055-5	20						20	100	0.000
MSI168-2	27						27	100	0.000
SUPERIOR	22						22	100	0.000
MSE030-4	24	1					25	96	0.040
B1865-2	23	1					24	96	0.042
MSH015-2	23	1					24	96	0.042
MSI037-7	23	1					24	96	0.042
MSH112-6	22	1					23	96	0.043
MSH370-3	22	1					23	96	0.043
AF1668-60	21	1					22	95	0.045
MSF001-2	19	1					20	95	0.050
MSI050-4	24	2					26	92	0.077
MSH217-1	23	2					25	92	0.080
MSB076-2	20	3					23	87	0.130
MSI178-8	18	3					21	86	0.143
SNOWDEN	22	4					26	85	0.154
AF1775-2	19	4					23	83	0.174
ONAWAY	22	3	1				26	85	0.192
MSH067-3	17	2	1				20	85	0.200
MSH333-3	20	5					25	80	0.200
ATLANTIC	22	4	1				27	81	0.222
MSE080-4	19	2		1			22	86	0.227
MSF382-2	20	4	1				25	80	0.240
MSH123-5	19	6					25	76	0.240
ND01496-1	20	4	1				25	80	0.240
MSH095-4	18	5	1				24	75	0.292
MSI085-10	18	3	1	1			23	78	0.348
AF1615-1	17	7	1				25	68	0.360
MSG106-5	15	9					24	63	0.375
NY120	15	8	1				24	63	0.417
AF1437-1	12	6	2				20	60	0.500
MSH360-1	15	7	1		1	1	25	60	0.720
MSB107-1	9	11	4				24	38	0.792
MSF060-6	9	11	5				25	36	0.840
PRELIMINARY TRIAL									
MSI058-2	20						20	100	0.000
MSI137-CY	18						18	100	0.000
MSI201-2PY	17						17	100	0.000
MSJ112-5	19						19	100	0.000
MSJ154-16A	9						9	100	0.000
MSJ168-2Y	20						20	100	0.000
MSJ316-3	19						19	100	0.000
SUPERIOR	20						20	100	0.000

Michigan Table 12B. Continued.

VARIETY	NUMBER OF SPOTS PER TUBER						TOTAL TUBERS	PERCENT	
	0	1	2	3	4	5+		BRUISE FREE	AVERAGE SPOTS/TUBER
MSJ033-6Y	20	1					21	95	0.048
ATLANTIC	19	1					20	95	0.050
MSH308-3Y	19	1					20	95	0.050
MSI026-A	19	1					20	95	0.050
MSJ170-4	19	1					20	95	0.050
MSJ177-5R	19	1					20	95	0.050
MSJ080-8	18	1					19	95	0.053
MSJ156-4Y	18	1					19	95	0.053
SNOWDEN	18	1					19	95	0.053
MSJ147-1	17	1					18	94	0.056
MSJ307-2	17	1					18	94	0.056
MSJ049-1Y	16	1					17	94	0.059
MSJ163-7R	15	1					16	94	0.063
MSH186-13Y	18	2					20	90	0.100
MSJ153-2Y	9	1					10	90	0.100
MSJ202-1	18	2					20	90	0.100
MSJ107-4	17	2					19	89	0.105
MSJ212-2	17	2					19	89	0.105
ONAWAY	18	1	1				20	90	0.150
MSJ472-4P	16	3					19	84	0.158
MSJ482-2	16	3					19	84	0.158
MSJ059-3	14	3					17	82	0.176
MSJ204-3	18	2	1				21	86	0.190
MSJ494-1	17	4					21	81	0.190
MSJ069-3	16	4					20	80	0.200
MSJ166-1	16	4					20	80	0.200
MSI102-E	15	5					20	75	0.250
MSI058-38	16	3	1				20	80	0.250
MSJ080-1	16	3	1				20	80	0.250
PIKE	15	5					20	75	0.250
MSJ343-1	14	6					20	70	0.300
MSJ452-4Y	13	6					19	68	0.316
MSI587-A	16	4		1			21	76	0.333
MSH222-58	14	5	1				20	70	0.350
MSJ060-2	14	5	1				20	70	0.350
MSH018-5	15	4			1		20	75	0.400
MSI011-A	15	3	1	1			20	75	0.400
MSJ033-10Y	12	7	1				20	60	0.450
MSJ132-1Y	12	7	1				20	60	0.450
MSH356-A	13	4	3				20	65	0.500
MSJ438-2	11	8	1				20	55	0.500
MSJ456-4	15	3	1			1	20	75	0.500
MSI170-4	10	9	1				20	50	0.550

Michigan Table 12B. Continued.

VARIETY	NUMBER OF SPOTS PER TUBER						TOTAL TUBERS	PERCENT	AVERAGE SPOTS/TUBER
	0	1	2	3	4	5+		BRUISE FREE	
SNACK FOOD ASSOCIATION TRIAL									
AF1668-60	24	1					25	96	0.040
SNOWDEN	24		1				25	96	0.080
FL1867	23	3					26	88	0.115
AF1775-2	20	5					25	80	0.200
MSNT-1	20	5					25	80	0.200
MSE246-5	15	2	1				18	83	0.222
NY112	17	5					22	77	0.227
ATLANTIC	20	4	1				25	80	0.240
MSA091-1	19	7					26	73	0.269
W1431	18	6	1				25	72	0.320
B0766-3	18	5	2				25	72	0.360
NY120	16	10	2				28	57	0.500

* Tuber samples were collected at harvest, graded, and held until evaluation.

Samples were abrasive-peeled and scored on November 1, 2000.

The table is presented in descending order of average number of spots per tuber.

Michigan Table 13. Fusarium Dry Rot Trial.

Line	Average Lesion Depth	Line	Average Lesion Depth
A087277-6	2.5	Yukon Gold	15.9
MSI058-22	2.7	Superior	16.1
Snowden	4.9	MSI002-3	16.3
P83-11-5	5.1	MI Purple	16.4
MSJ494-1	5.5	MSJ156-4Y	16.7
MSH356-A	5.7	MSI026-A	16.8
MSI050-4	5.9	MSI137-CY	16.8
SpCry5-G3	5.9	MSJ472-4P	16.8
MSE192-8RUS	6.0	Superior	16.8
MSG106-5	6.4	MSJ080-1	17.0
MSJ033-10Y	7.7	W1431	17.1
MSJ168-2Y	7.7	MSF099-3	17.2
MSJ202-1	8.0	MSH222-58	17.3
L235-4	8.4	NY123	17.7
SpuntaG2	8.8	MSJ033-6Y	17.8
W1355-1	9.1	MSJ482-2	18.5
MSH106-2	9.3	MSI170-4	18.7
Snowden	9.6	MSJ107-4	20.6
MSG227-2	9.9	MSJ132-1Y	20.6
MSG004-3	10.0	MSE221-1	20.9
LadyClaire	10.0	Torridon	21.0
MSG274-3	10.2	MSF373-8	21.3
NY120	10.7	MSJ059-3	21.7
MSE018-1	10.8	Spunta	21.7
MSJ153-2Y	11.0	W1386	21.7
MSJ060-2	11.2	MSH333-3	21.8
MSA091-1	11.7	MSJ307-2	21.8
Accord	11.7	MSH098-2	22.2
ND3196-1R	11.8	Russet Burbank	22.4
MSH094-8	11.9	MSJ147-1	23.0
MSH018-5	12.0	SPCry5-6a-3	23.2
MSH026-3RUS	12.5	MSF452-4Y	23.5
MSJ163-7R	12.7	MSJ438-2	23.9
MSH031-5	12.8	MSF313-3	24.1
MSI037-7	12.8	Russet Norkotah	24.1
NY112	12.8	MSJ456-4	24.5
MSJ177-5R	13.5	MSJ316-3	24.7
L235-4.8	13.6	MSJ170-4	25.1
MSI201-2PY	13.7	Saginaw Gold	25.1
Gem Russet	14.0	Onaway	25.4
MSH095-4	14.3	MSJ112-5	26.4
Bannock Russet	14.6	Onaway	27.4
Atlantic	14.7	MSH123-5	27.5
MSI055-5	14.9	MSE230-6	27.7
MSI011-A	15.3	MSE202-3RUS	27.8
MSJ080-8	15.3	MSI582-A	28.6
MSJ204-3	15.6	MSJ166-1	28.7
Pike	15.6	ND3574-5R	29.4
MSJ343-1	15.9	MSJ049-1Y	32.1
LSD (0.05)	10.5		

Minnesota

Christian A. Thill

Breeding Objectives:

1. Develop, evaluate and distribute potato (*Solanum tuberosum* Group Tuberosum L.) cultivars and germplasm that are genetically superior for yield, fresh and processing market quality, and disease resistance.
2. In collaboration with North Central and other potato breeding programs, characterize advanced breeding selections for adaptation, yield, quality and disease resistance in Minnesota.
3. Identify germplasm and incorporate into adapted cultivars host plant resistance to: (a) green peach aphids, and Colorado potato beetle, (b) PVY and PLRV viruses, and (c) Verticillium wilt, common scab, and late blight.

Cooperators:

J. Sowokinos and D. Preston, Department of Horticultural Science, University of Minnesota, St. Paul

M. Glynn, USDA/ARS, Potato Research Worksite, East Grand Forks

R. Jones, Department of Plant Pathology, University of Minnesota, St. Paul

E. Radcliffe and D. Ragsdale, Department of Entomology, University of Minnesota, St. Paul

C. Rosen, Department of Soil Water and Climate, University of Minnesota, St. Paul

Willem Schrage, MN Dept. of Agriculture Potato Seed Certification, East Grand Forks

J. Bergman and J. Saricka, USDA/ARS, NDSU, Williston, ND

College of Agriculture, Life, and Environmental Science, Minnesota Agricultural Experiment Station: G. Cuomo, WCROC, Morris; G. Titrud, Sand Plains Research Farm, Becker; L. Smith,

CROC, Crookston; D. Wallenbach, RROC, Rosemount; D. Wildung, NROC, Grand Rapids.

Locations – Field experiments were conducted at six Minnesota (Morris, Grand Rapids, Becker, Rosemount, Crookston, Hollandale) and one North Dakota (Williston) locations.

Clonal Evaluations and Procedures - Clones evaluated were thirty (30) advanced, thirty (30) preliminary advanced, sixty (60) intermediate (40-hill) generation, and sixty (60) early generation seedlings. These seedlings were evaluated for horticultural, processing, and agronomic performance. The intermediate and early generation seedlings were also evaluated for disease / pest resistance.

Generating New Hybrid Progeny – This project produced over 1300 new hybrid cross combinations. Approximately 700 crosses are specific to varietal development and 600 crosses toward germplasm enhancement exploiting wild species of potato, and other genetic and breeding studies being performed by graduate students in this program. Progeny from crosses were grown in the St. Paul greenhouses, then in the single-hill field at Morris.

Greenhouse grown seedling tubers grown in excess of MN needs (i.e. B, C, and D-size tubers) were given to cooperating breeding programs in Michigan, Wisconsin, North Dakota, Texas, Colorado, and Oregon for selection and evaluation in their programs. Minnesota receives similar tubers from these programs and plants them as single-hills along side of our own production. In 2001, we plan to evaluate more than 100,000 new crosses using these seed sources

Yield, Grade and Quality Evaluations – Breeding selections advancing in our program were compared to commercial cultivars in field trials at irrigated and non-irrigated locations in Minnesota and North Dakota. Typical yield, grade, and quality information were collected at harvest. These data include plant maturity, stand, total and US #1 marketable and size distribution yield, percentage of U.S. #1 yield and graded defect weights (malformed tubers, severe growth

cracking, etc.), specific gravity, incidence and type of internal and external defects, and processing color. Then, evaluations for storability and chip and french fry processing were determined after 1-, 3-, and 6-months storage at 40 F. Red-skinned selections were evaluated for color and skin sloughing after harvest and storage. The best clones will be advanced.

New Breeding Methods – We are exploring new breeding methods that could be used to accelerate varietal development time for late blight (LB) resistant progeny. As previously mentioned, B-size seedling tubers and smaller are exchanged with other breeding programs or discarded. To rapidly select new hybrids for LB resistance we want to save some of these tubers for selection when planted in a LB disease-screening nursery. A preliminary test in 2000 was successful; we selected 87 clones for advancement. They will be evaluated for horticultural-type and re-evaluated for LB resistance in 2001. The experiment will be repeated with new hybrid families in 2001.

Symptom expression of PVY and PLRV – Advanced selections were evaluated for expression of virus symptoms. We infect seed with PVY and PLRV (via aphids) at Rosemount. Tubers from harvested plots at Rosemount were compared to non-infected seed from Morris when grown at the MN Seed Potato Certification Program's winter testing site. Advanced selections lacking visual expression of viruses were tested serologically using ELISA. Clones testing positive for the disease(s) and lacking visual expression are discarded.

Disease and Insect Resistance Evaluations – Breeding selections were evaluated early in the selection cycle for their status on disease and insect resistance.

The resistance / susceptibility status to potato diseases of a breeding selection were made in the following areas. These data will aid in identifying new sources of resistance, whereby resistant clones will be considered for advance and/or used in crosses. Additionally, these data will provide the basis for determining disease

management practices of advanced selections released to industry.

- Common scab – tuber severity and tuber coverage.
- Late blight – foliar defoliation after inoculation.
- Verticillium wilt – wilting index and vascular colonization.

Clonal Descriptions

MN 17922 Red – This bright red clone has a light feathery skin and white flesh and tubers are round in shape with excellent internal quality. Its use is for fresh market. Yields of MN 17922 are equal to Dark Red Norland at the late harvest periods and lower at earlier harvest, since its maturity is later. Tuber yield is distributed as approximately 5% <2oz., 10% 2-6oz., 65% 6-12oz., and 20% >12oz. The specific gravity of MN 17922 is similar to Dark Red Norland. It is susceptible to common scab, late blight, and expresses normal symptoms of PVY and PLRV infection.

MN 19055 Red – This red clone has a good skin set after maturation and white flesh and tubers are round in shape with excellent internal quality. Its use is for fresh market. Yields of MN 19055 are greater than Dark Red Norland at the late harvest periods and lower at earlier harvest, since its maturity is late. Tuber yield is distributed as approximately 15% <2oz., 30% 2-6oz., 45% 6-12oz., and 10% >12oz. The specific gravity of MN 19055 is greater than Dark Red Norland. It is susceptible to common scab, late blight, and expresses normal symptoms of PVY and PLRV infection.

MN 19525 Red – This red clone has a good skin set after maturation and white flesh and tubers are round to oval in shape with excellent internal quality. Its use is for fresh market. Yields of MN 19525 are equal to Dark Red Norland at both early and late harvest and maturity is later. Tuber yield is distributed as approximately 5% <2oz., 10% 2-6oz., 65% 6-12oz., and 20% >12oz. The specific gravity of MN 19525 is greater than Dark Red Norland. It is susceptible to common scab, late blight, and expression of normal symptoms of PVY and PLRV has not been determined.

MN 96013-1 Red – This red clone has a good skin set after maturation, dark-yellow flesh and tubers are round to oval in shape with excellent internal quality. Its use is for fresh market. Yields of MN 96013-1 are less than Dark Red Norland at the early harvest yet exceed it at late harvest, since its maturity is late. Tuber yield is distributed as approximately 5% <2oz., 10% 2-6oz., 65% 6-12oz., and 20% >12oz. The specific gravity of MN 96013-1 is high and much greater than Dark Red Norland. It is susceptible to common scab, late blight, and expression of normal symptoms of PVY and PLRV has not been determined

MN 15620 – This clone has red / pink color skin and yellow flesh. Its use is as a breeding line due to its resistance to PVY and PLRV, however, there is renewed interest in this clone for fresh market and/or french fry processing in domestic and South American markets. MN 15620 tubers are oval and smooth and distributed as approximately 10% <2oz., 65% 2-6oz., 20% 6-12oz., and 5% >12oz. Yields of MN 15620 are greater than Dark Red Norland and less than Red Pontiac and produce about 85-90% US#1 tubers. MN 15620 processing color is good and specific gravity is similar to Shepody. It appears resistant to PVY and PLRV infection.

MN 18153 rus – This clone has netted skin and white flesh and tubers are oval to blocky oval in shape with excellent internal quality. Its use is for fresh market and/or french fry processing. Yields of MN 18153 are greater than Goldrush at early and late harvest periods, while its maturity is slightly later. Tuber yield is distributed as approximately 5% <2oz., 40% 2-6oz., 50% 6-12oz., and 5% >12oz. The specific gravity of MN 18153 is greater than Goldrush. It is susceptible to common scab, late blight, and expresses normal symptoms of PVY and PLRV infection; it has tolerance to *Verticillium* wilt similar to Russet Norkotah.

MN 18747 rus – This clone has white skin and white flesh color and tubers are oblong, smooth and attractive and have greater size and shape uniformity than Shepody. Its use is for early french fry processing since internal quality is

superior to Shepody and this clone expresses normal symptoms of PVY and PLRV infection unlike Shepody. Tuber yield is 10% less than Shepody with 90-95% US#1 and distributed similar to Shepody as approximately 5% <2oz., 20% 2-6oz., 60% 6-12oz., and 15% >12oz. The specific gravity of MN 18747 is less than Shepody at about 1.075. It is susceptible to common scab, late blight, and *Verticillium* wilt, and expresses symptoms of PVY and PLRV.

MN 18710 rus – This clone has netted buff-colored skin, a white flesh color and oblong to long tubers that are smooth and attractive and have greater size and shape uniformity than R. Burbank. Its use is for french fry processing and fresh since quality is superior to R. Burbank. Tuber yield is greater than R. Burbank with 90-95% US#1 and distributed similar to R. Burbank as approximately 10% <2oz., 20% 2-6oz., 65% 6-12oz., and 5% >12oz. The specific gravity of MN 18710 is similar to R. Burbank. It is susceptible to common scab, late blight, and *Verticillium* wilt, and expresses normal symptoms of PVY and PLRV infection.

MN 19157 – This round white clone matures later than Atlantic and earlier than Norchip, yet yields greater than both with good market size. Tubers are round and uniform and have a specific gravity similar to NorValley. MN 19157 is targeted for the potato chipping market and has quality similar to NorValley directly from the field and after storage. It is susceptible to common scab, late blight, and *Verticillium* wilt, and expresses normal symptoms of PVY and PLRV infection.

MN 19315 – This clone is a round white chipping selection with white color flesh. Chip quality is excellent from the field and from 45 F storage with potential to chip directly from 42 F. Maturity of MN 19315 is later than Atlantic and NorValley, earlier than Snowden. Tuber yields are 10% less than Snowden with 85-95% US#1 and distributed as approximately 5% <1 7/8, 70% 1 7/8 – 2 1/4, 20% 2 1/4 - 3 1/2, and 5% >3 1/2. Specific gravity of MN 19315 is equal to Snowden. It is susceptible to common scab, late blight, and *Verticillium* wilt, and expresses normal symptoms of PVY and PLRV infection.

Minnesota Table 1. Summary of tuber characteristics, ratings, and market of advanced MN seedlings at 4 harvest locations Beeker (early and late), Crookston, and Williston in 2000.

Clone	Tuber Characteristics									
	Loc	Mkt	Type	Flesh	Shape	Rep 1		Rep 2		Rating
						Comments	Rating	Comments	Rating	
RED										
17922	BE	R	Red	W	Rnd	Lg sz, good shp and sz, poor skn		Lg sz, good shp and sz, poor skn	4	6
17922	BL	R	R	W	Rnd	Lg-m, unif sz and shp, poor skn		Lg sz, unifshp and sz, attr color, skins	K	D
17922	C	R	R	W	Rnd	Ex sz, Skns too much ?		Ex color, V. attr, needs skn	K	K
17993	BE	R	Red	W	Ov	Lg sz, good shp and sz, good skn		M-Lg, good shp and sz, mod skn	7+	6+
17993	C	R	R	W	Rnd	Good color, skins		Unif shp, good sz, ok color and skn	D	1
18365	BE	R	Red	W	Ov	M sz, good shp and sz, good skn		M sz, good shp and sz, ex skn	5	7
18365	C	R	R	W	Ov	Unif sz and shp, needs skn		Ok here, 6" sz, good color, needs skn	D	1
19055	BE	R	Red	W	Rnd	M sz, good shp and sz, good skn		S sz, good shp and sz, good skn	5	6
19055	BL	R	R	W	Rnd	Med-s sz, unif sz and shp, good skn, rot		Lg-m sz, var, unif shp, good color, skns	D	D
19055	C	R	R	W	Rnd	V good color and skn, lt net		M-s, unif shp, skn is poor	K+	1
19298	BE	R	Red	Yel	Rnd	M sz, good shp ex sz, good skn		M sz, good shp and sz, good skn	4	5
19298	BL	R	R	Yel-lt	Rnd	Ex sz, net skn ok, good unif		Lg sz, good unif sz and sh, med skn	K	K
19298	C	R	R	W	Rnd	Unif sz, net skn, goodfill		Lg-m, smooth, poor color, good skn	K	1
19329	BE	R	Red	Yel	Ov	Lg sz, good shp and sz, good skn		Lg sz, good shp and sz, good skn	5	6
19329	BL	R	R	Yel-lt	Ov	Ld, var sz, good skn, pink, FM		Med sz, good sz here, pink, mkt ??	1	D
19329	C	R	R	Yel	Ov-Ob	Skin ok, lt net		Attr, smooth, Org-lt pink, goodskn, mkt?		1-
19525	BE	R	Red	W	Rnd	M-Lg, mod shp, good sz, mod skn		Lg sz, good shp and sz, good skn	4	7
19525	BL	R	R	W	Rnd	Lg sz, ex unif shp, ex skn		Lg, unif shp and sz, ok skn	K	K
19525	C	R	R	W	Ov	Smooth, good sz, needs skn		Lt net skn, unif sz	D	K-
D.R. Norland	BE	R	Red	W	Rnd	M-Lg sz, good shp and sz, good skn		S sz, good shp and sz, good skn	6	6
D.R. Norland	BL	R	R	W	Ov	Lg, attr, good skn		Unif shp and sz, good skn	K	K
D.R. Norland	C	R	R	W	Rnd	Unif, skin on		Lg, var shp, Ex color goodskn	K	K
R. Pontiac	BE	R	Red	W	Rnd	M sz, poor shp, good sz, good skn		M sz, mod shp, good sz, good skn	4	5
R. Pontiac	BL	R	R	W	Rnd	Lg z, good unif sz and shp and skn		Deep eyes, skins	K	D
R. Pontiac	C	R	R	W	Rnd	Raised eye		Deep eyes, good color and skn	D	D

Minnesota Table 1. Continued.

Tuber Characteristics									
Clone	Loc	Mkt	Type	Flesh	Shape	Comments (Rep 1)	Rating	Comments (Rep 2)	Rating
LONG WHITE / RUSSET									
15620	BE	R	Red	Yel	Ov	M sz, good shp and sz, good skn	6	M sz, good shp and sz, good skn	5
15620	BL	R	RL	Yel-lt	Long	Lg-m, unif sz and shp, good skn	K	Small sz, what mkt ??	K
15620	C	F	R.L	Yel	Ob-Long	Unif shp, pink color, lt skn	D	Needs length, ok here	K
15620	W	FM	RL	Yel	Ov-Ob	V. attr, unif shp, med sz	K	Needs length	K
18747	BE	FF	LW	W	Ov	M-Lg, good shp and sz, good skn	6	M sz, good shp and sz, good skn	4
18747	BL	FF	LW	W	Ov	Lg, ex skn, good sz and shp	K	Lg sz, unif shp, needs more length	D
18747	C	R	LW	W	Long	Fills-out >> Shepody, lt skn	K+	Needslength, slough skn	I-
18747	W	F	LW	W	Ob-Ov	Good skn, needs length here	D	Needs length for FF	D
19470	BE	FF	LW	W	Ov-Long	Lg sz, good shp and sz, good skn	5	Lg sz, good shp and sz, good skn	6
19470	BL	FF	LW	W	Long	Lg-m, FF, somernd, good skn	K	Lg sz, lt skn, good shp and sz	K
19470	C	F	LW	W	Ob-Long	Good end fill, FF	K	Lg, needs length for FF	D
19470	W	F	LW	W	Ov-Ob	Smooth, unif shp, needs sz	I	Unif shp good sz	K
Shepody	BE	FF	LW	W	L, Ov	M sz, mod shp, mod sz, good skn	4	Lg sz, good shp and sz, good skn	6
Shepody	BL	FF	LW	W	Long	Lg sz, attr, unif sz and shp	K	Lg, get quite rough here, curves	D
Shepody	C	F	LW	W	Long	Irr shp	D	Rough, bottle, knobs	D
Shepody	W	F	LW	W	Ob-Long	Irregular, needs sz	D	Points	D
18153	BE	FF	rus	W	Ov	Lg-M, good shp and sz, good skn	7	M-Lg, good shp and sz, good skn	6
18153	BL	FF	rus	W	Long	Lg-over sz, good unif and skn	K	Lg and long, fills-out, attr skn, FF	K++
18153	C	F	rus	W	Ob	Needs length, poor skn	D	Big blk, attr, needs length	I
18153	W	F	rus	W	Ob-Long	V. attr, unif shp, ex skn, needs sz	K	Too Ob for FF, ex skin, fresh Mkt?	K
18710	BE	FF	rus	W	Long Blky	Lg sz, good shp and sz, good skn	6	M sz, mod shp, good sz, good skn	5
18710	BL	FF	rus	W	Long	Lg, ex unif sz and shp, good skn	K	Big get long, test in Pacific NW K++	K+
18710	C	F	rus	W	Ob-Long	Good fill, needs length	K	Good skn, needs length	I
18710	W	F	rus	W	Ob	Needs size, too Ob for FF	I	Attr, good skn, med sz	K
R. Burbank	BE	FF	rus	W	Long	M sz, poor shp, var sz, good skn	4	M sz, mod shp, mod sz, good skn	4
R. Burbank	BL	FF	rus	W	Long	Lg-m, poor shp, good skn	K	Long for FF, goodskn, knobs	D
R. Burbank	C	F	rus	W	Long	Ok shp and skn here	K	Lg-m, attr here, needs length	K
R. Burbank	W	F	rus	W	Long	V. poor, few here	D	Poor sz, good skn	D
R. Norkotah	BE	FF	rus	W	Long Ov	Lg-M sz, good shp and sz, good skn	7	Lg sz, ex shp and sz, ex skn	7
R. Norkotah	BL	FF	rus	W	Long	Lg-over sz, ex unif sz and shp, ex skn	K	Lg-over sz, ex sz, V attr shp	K
R. Norkotah	C	F	rus	W	Long	Poor skn	D	Lg, attr, unif shp and sz	K
R. Norkotah	W	F	rus	W	Ob-Long	Mostly stripper, unif shp, Ex and Attr.	K	Attr, good skn	K

Minnesota Table 1. Continued.

Clone	Loc	Mkt	Type	Flesh	Shape	Tuber Characteristics							
						Comments (Rep 1)	Rating	Comments (Rep 2)	Rating				
ROUND WHITE													
19140	BE	C	W	W	Rnd	Lg sz, mod shp, good sz, good skn	5	Lg-Ov, poor shp, good sz, good skn	4				
19140	BL	C	W	W	Rnd	Lg, good all around	K	Lg get lumpy	D				
19140	C	C	W	W	Rnd	Smooth shalloweyes, sloughing skn	I	V. attr, slough skn	I				
19157	BE	C	W	W	Rnd	M sz, ex shp and sz, good skn	6	M-Lg, good shp and sz, good skn	6				
19157	BL	C	W	W	Rnd	Attr, unif	K	V. attr, unif sz and shp	K++				
19157	C	C	W	W	Rnd	V.attr for chips, unif sz shp	K+	M-lg, attr, smooth	K				
19157	W	C	W	W	Rnd	Unif sz and shp, Ex. bruise?	I	Attr, smooth	K				
19315	BE	C	W	W	Ov	S sz,		S sz, mod shp, good sz, good skn	3				
19315	BL	C	W	W	Rnd	Med, small, unif sz and shp	K	Small	D				
19315	C	C	W	W	Rnd-Ov	Attr, smooth, lt net skn	K+	Smooth, med sz	K				
19315	W	C	W	W	Rnd	Good skn, unif shape	K	Small here	D				
19336	BE	FF	LW	Yel	Long	M sz, good shp and sz, good skn	4	Lg-M, good shp and sz, good skn	4				
19336	BL	FF	W	W	Long	Lg, some small, goodskn	I	Lg, unif szand shp, good skn	K				
19336	C	C	W	Yel	Ov	Smooth, ok, FM	I	Smooth, attr	K				
19350	BE	FF	W	W	Ov	Lg-M, good shp and sz, good skn	5	Lg sz, good shp and sz, good skn	5				
19350	BL	C	W	W	Ov	Lg, ex skn, ex unif shp	K	Lf sz, unif shp, lt skn, ok >> Shepody	K				
19350	C	C	W	W	Ov	Poor skn, sloughing	I	Fills-out, FF	K				
19350	W	C	W	W	Ov	Smooth, lt skn, Attr	K	Smooth, thick skn	I				
19484	BE	FF	LW	Yel	Long Blky	Lg sz, good shp and sz, good skn	4	Lg-Blky, mod shp, good sz, good skn	5				
19484	BL	FF	LW	W	Ob-Long	Lg-oves sz, good skn	I	Blky lg, unif shp	K++				
19484	C	F	W	Yel	Ob-Ov	Needs length, attr flesh	I	Ok here, could be better	D				
19484	W	C	W	Yel-lt	Rnd-Ov	V. attr, unif shp, med sz, fresh mkt	I	V. smooth, attr, unif shp, shallow eyes	K				
19515	BE	C	W	W	Rnd	S-m sz, good shp and sz, good skn	4	M sz, good shp and sz, good skn	5				
19515	BL	C	W	W	Rnd	Med sz, unifsz and shp, good skn	K	Lg-m, good overall					
19515	C	C	W	W	Rnd	Attr, good skn	K	Unif					
19515	W	C	W	W	Rnd	Attr, smooth, unif sz and shp, K+	K	Smooth, attr, unif sz and shp	K				

Minnesota Table 1. Continued.

Tuber Characteristics						
Clone	Loc	Mkt Type	Flesh	Shape	Comments (Rep 1)	Rating
ROUND WHITE						
Atlantic	BE	C	W	Rnd	M-Lg, good shp var sz, good skn	4
Atlantic	BL	C	W	Rnd	Lg sz, good all around	K
Atlantic	C	C	W	Rnd	Unif shp, var sz	
Atlantic	W	C	W	Rnd	Ex unif shp, var shp, thick skin	K
NOMADE	BE	Dhy	W	Rnd	Lg sz, good shp and sz, good skn	5
NOMADE	BL	Dhy	W	Rnd	Med-lg sz, unif sz and shp, poor internal	D
NOMADE	C	Dhy	W	Rnd	Bruise, V. poor appr	D
NOMADE	W	C	W	Rnd	Deep eyes, a lot of internal necrosis	D
NorValley	BE	C	W	Rnd	Lg sz, good shp and sz, good skn	7
NorValley	BL	C	W	Rnd	Var sz, unif shp	I
NorValley	C	C	W	Rnd	Attr, good sz, unif	K
NorValley	W	C	W	Rnd	Few lg	I
Snowden	BE	C	W	Rnd	M-Lg sz, good shp and sz, good skn	6
Snowden	BL	C	W	Rnd	All good here	K
Snowden	C	C	W	Rnd-Ov	Raised eyes, net skn, OK	K
Snowden	W	C	W	Rnd	Small	I

Locations - Becker (BE - Early) (BL - Late) irrigated; Crookston (C) dryland; Williston (W) irrigated.

Market type - Chips (C), French fry (FF), Reds for fresh market (R), and Fresh Market (FM).

Tuber Type - Red (R), Long red (LR), Russet (rus), Round White (W), and Long White (LW).

Tuber flesh - White (W), Yellow (Yel), Purple (Pur)

Tuber shape - Round (Rnd), Oval (Ov), Oblong (Ob), Long

Rating - Drop (D), Intermediate (I), Keep (K).

Minnesota Table 2. Disease expression, internal and processing quality, and yield of advanced MN seedlings at 4 harvest locations in 2000.

Clone	Loc	Visual		% Tuber Quality				% of Total				Cwt/A		Proc Color	Specific Gravity	SUC (mg/g)	GLU
		PVY	PLRV	HH	IN	VD	BC	B	Sm. A	Lg. A	Over	Cull	A's					US #1	Total
RED																	
17922	BE			0	15	0	0	1	19	45	35	0	99	449	454	1.062	
17922	BL	ND	ND	0	0	0	0	3	7	56	32	2	95	558	587	1.065	2.005
17922	C			0	5	15	0	2	7	63	27	0	98	337	344	1.083	4.098
17993	BE			0	0	0	0	2	47	45	5	0	98	502	515	1.070	
17993	C			0	0	5	0	6	38	56	0	0	94	279	297	1.099	1.987
18365	BE			0	0	0	0	5	70	24	1	0	95	443	466	1.062	
18365	C			0	0	5	0	22	40	38	0	0	78	109	141	1.081	1.596
19055	BE			0	0	0	0	10	78	12	1	0	90	367	403	1.068	
19055	BL	+	+	0	0	10	0	16	22	51	8	3	81	504	620	1.074	1.948
19055	C			0	0	5	0	18	42	40	0	0	82	225	272	1.083	1.649
19298	BE			5	15	0	5	3	42	42	13	0	97	480	496	1.073	
19298	BL	+	+	0	0	0	0	6	14	57	22	0	93	765	819	1.068	0.334
19298	C			0	0	5	0	12	25	59	4	0	88	192	214	1.095	1.937
19329	BE			10	0	0	0	4	58	31	6	0	96	425	442	1.061	
19329	BL	+	+	0	0	0	0	9	14	56	21	0	91	769	848	1.064	1.240
19329	C			0	0	45	0	16	35	48	1	0	84	254	301	1.081	0.803
19525	BE			0	0	0	0	4	47	42	6	0	96	462	483	1.071	
19525	BL	ND	ND	0	0	0	0	6	13	61	19	1	93	450	482	1.071	0.455
19525	C			0	0	10	0	11	36	53	0	0	89	134	149	1.093	2.380
D.R. Norland	BE			0	0	0	5	3	68	26	3	0	97	443	459	1.059	
D.R. Norland	BL	+	+	0	0	0	0	6	27	59	7	1	93	435	468	1.061	0.564
D.R. Norland	C			0	0	5	0	7	37	55	0	0	93	170	181	1.078	1.372
R. Pontiac	BE			0	0	0	0	2	41	47	10	0	98	479	490	1.062	
R. Pontiac	BL	+	0	5	0	0	0	4	11	61	24	0	96	732	761	1.068	2.128
R. Pontiac	C			0	0	10	0	9	19	65	7	0	91	189	207	1.080	2.091

Minnesota Table 2. Continued.

Clone	Loc	Visual		% Tuber Quality				% of Total			Cwt/A		Proc	Specific Gravity	SUC (mg/g)	GLU	
		PVY	PLRV	HH	IN	VD	BC	B	Sm. A	Lg. A	Over	Cull					A's	US #1	Total
LONG WHITE / RUSSET																	
15620	BE			0	0	0	5	6	85	8	0	0	94	425	454	1.075	0.127
15620	BL	+	+	0	0	0	0	11	27	57	4	0	89	609	685	1.084	
15620	C			0	0	0	0	11	26	60	3	0	89	221	247	1.090	
15620	W			0	0	15	0	12	44	44	0	0	88	312	355	1.107	
18747	BE			0	0	5	0	3	66	27	4	0	97	375	386	1.065	0.055
18747	BL	ND	ND	0	0	0	0	2	14	56	27	2	97	450	464	1.067	
18747	C			0	0	0	0	3	15	62	21	0	97	315	326	1.087	
18747	W			0	0	0	0	12	27	61	0	0	88	192	218	1.086	
19470	BE			0	0	0	0	3	51	41	5	0	97	344	355	1.085	0.354
19470	BL			0	5	0	0	3	10	52	35	0	97	903	928	1.103	
19470	C			0	0	10	0	6	24	59	11	0	94	286	305	1.115	
19470	W			0	0	0	0	9	31	56	5	0	91	276	301	1.115	
Shepody	BE			10	0	20	5	2	68	26	4	0	98	330	337	1.073	0.213
Shepody	BL	ND	ND	0	0	0	0	4	12	48	36	1	96	562	587	1.091	
Shepody	C			0	0	5	0	5	14	54	23	5	91	218	239	1.083	
Shepody	W			0	0	5	0	15	41	41	3	0	85	185	218	1.098	
18153	BE			0	0	5	0	5	47	40	7	0	95	396	416	1.071	0.181
18153	BL	0	+	5	0	0	0	7	10	61	22	1	92	518	562	1.077	
18153	C			0	0	0	0	8	10	65	17	0	92	243	265		
18153	W			0	0	0	0	10	32	53	4	0	90	221	247	1.097	
18710	BE			5	5	5	0	3	49	44	4	0	97	516	533	1.071	0.542
18710	BL	+	+	0	0	0	0	5	16	61	17	2	94	660	703	1.083	
18710	C			0	0	0	0	9	36	44	11	0	91	261	286	1.082	
18710	W			0	0	0	0	15	42	43	0	0	85	250	294	1.099	
R. Burbank	BE			0	0	0	15	9	84	7	0	0	91	252	277	1.073	0.156
R. Burbank	BL	ND	ND	20	0	0	0	11	20	57	12	0	89	366	410	1.080	
R. Burbank	C			0	0	0	0	11	24	50	15	0	89	174	196	1.094	
R. Burbank	W			0	0	0	10	62	32	7	0	0	38	44	112	1.091	
R. Norkotah	BE			0	0	25	0	3	61	34	3	0	97	522	536	1.069	0.356
R. Norkotah	BL	ND	ND	0	0	0	0	6	12	54	28	0	94	609	649	1.069	
R. Norkotah	C			5	0	0	0	16	17	58	9	0	84	196	228	1.085	
R. Norkotah	W			0	0	10	0	20	40	40	0	0	80	196	247	1.095	

Minnesota Table 2. Continued.

Clone	Loc	Visual		% Tuber Quality				B	% of Total				Cwt/A		Proc	Specific Gravity	SUC (mg/g)	GLU
		PVY	PLRV	HH	IN	VD	BC		Sm. A	Lg. A	Over	Cull	A's	US #1					Total
ROUND WHITE																		
19140	BE			5	0	0	0	5	38	38	19	0	95	330	347	5	1.081	
19140	BL	+	+	0	0	0	0	4	10	47	37	1	95	547	576		1.087	
19140	C			0	0	0	0	9	26	60	5	0	91	112	123		1.100	
19157	BE			0	5	0	5	5	51	42	2	0	95	441	461	3	1.079	
19157	BL	+	+	0	0	0	0	10	29	59	2	1	89	442	493		1.081	
19157	C			0	0	0	0	9	24	62	5	0	91	341	373		1.100	
19157	W			0	0	0	0	15	51	34	0	0	85	210	247		1.101	
19315	BE			30	0	5	0	10	86	4	0	0	90	341	375	4	1.076	
19315	BL	+	+	0	0	0	0	19	37	43	0	2	79	486	609		1.095	
19315	C			0	0	0	0	44	42	11	3	0	56	127	225		1.105	
19315	W			0	0	0	0	55	34	11	0	0	45	83	185		1.114	
19336	BE			0	0	0	0	6	71	21	2	0	94	400	426	3	1.077	0.094
19336	BL	+	+	0	0	0	0	9	16	63	11	1	90	605	671		1.102	
19336	C			0	0	0	0	15	36	47	3	0	85	236	276			
19350	BE			0	0	0	0	4	53	42	2	0	96	533	553	4	1.077	0.156
19350	BL	+	+	0	0	0	0	5	19	70	5	1	94	569	605		1.086	
19350	C			0	0	0	0	6	16	69	10	0	94	279	297			
19350	W			0	0	0	0	12	37	50	1	0	88	218	247		1.105	
19484	BE			15	0	0	10	3	38	37	22	0	97	435	447	7	1.070	1.497
19484	BL	ND	ND	0	0	0	0	3	11	47	38	1	96	609	634		1.077	
19484	C			0	0	0	0	7	19	56	18	0	93	257	276		1.099	
19484	W			0	0	0	0	10	25	62	3	0	90	290	323		1.102	
19515	BE			0	0	0	0	6	74	20	0	0	94	373	399	4	1.074	
19515	BL	+	+	0	0	0	0	9	27	61	3	0	91	667	732		1.088	
19515	C			0	0	0	0	18	37	44	1	0	82	221	272		1.091	
19515	W			0	0	0	0	17	46	37	0	0	83	283	341		1.103	

Minnesota Table 2. Continued.

Clone	Loc	Visual		% Tuber Quality				% of Total				Cwt/A		Proc	Specific Gravity	SUC (mg/g)	GLU	
		PVY	PLRV	HH	IN	VD	BC	B	Sm. A	Lg. A	Over	Cull	A's					US #1	Total
ROUND WHITE																		
Atlantic	BE			15	25	0	0	4	47	40	9	0	96	445	464	4	1.074	
Atlantic	BL	+	+	0	0	0	0	6	17	55	21	1	92	526	569		1.096	
Atlantic	C			0	0	5	0	7	26	67	0	0	93	210	228		1.106	
Atlantic	W			0	0	0	0	11	27	61	1	0	89	236	265		1.111	
NOMADE	BE			10	85	0	0	2	58	37	3	0	98	493	505	5	1.081	
NOMADE	BL			0	100	0	0	6	17	68	8	0	94	906	961		1.094	
NOMADE	C			0	0	0	30	13	36	49	2	0	87	279	319		1.119	
NOMADE	W			0	20	0	45	17	52	31	0	0	83	268	323		1.125	
NorValley	BE			0	0	0	0	6	58	30	6	0	94	485	515	4	1.076	
NorValley	BL	0	+	0	0	0	0	9	24	59	8	0	91	602	663		1.083	
NorValley	C			0	0	0	0	12	29	50	9	0	88	279	315		1.093	
NorValley	W			0	0	0	0	18	45	35	2	0	82	236	286		1.097	
Snowden	BE			0	0	0	0	6	62	30	2	0	94	355	377	5	1.086	
Snowden	BL	+	0	0	0	10	0	8	18	65	9	0	92	471	511		1.088	
Snowden	C			0	0	0	0	16	38	46	0	0	84	145	174		1.097	
Snowden	W			0	0	0	0	23	40	36	0	0	77	236	305		1.106	

Locations - Becker (BE - Early) (BL - Late) irrigated; Crookston (C) dryland; Williston (W) irrigated.

Visual symptom expression of PVY and PLRV - Yes (+), and No (-).

Internal Defects - 10 large tubers cut; Hollow heart (HH), Internal necrosis (IN), Vascular discoloration (VD), Brown center (BC).

Size Grade - B \leq 1 7/8 (4oz.), Sm. A = 1 7/8 (4oz.) - 2 1/4 (6oz.), Lg. A = 2 1/4 (6oz.) - 3 1/2 (12oz.), Over > 3 1/2 (12oz.).Processing color - SFA 1-5 (poor), Agtron (\geq 60 acceptable), and USDA FF color standards (000-light to 4-dark).

Minnesota Table 3. Summary of tuber characteristics, ratings, and market of preliminary advanced MN seedlings at 4 harvest locations in 2000.

Clone	Tuber Characteristics							
	Loc	Tuber		Shape	Comments (Rep 1)	Rating	Comments (Rep 2)	Rating
		Mkt	Type					
RED								
MN 96001-1	BE		WP, Pi	Ov-Long	M sz, ex shp and sz, lt skn	5	M sz, good shp and sz, good skn	5
MN 96001-1	BL		WP, Pi	Long	Med sz, moderate unif	D	Smooth, ok, whatmkt ??	I
MN 96001-1	C	R	WP, Pi	Ov	Lt pink to Orange, mkt ?	I-D	Med sz, needs length for FF, Pale color	D
MN 96001-1	W	FM	WP, Pi	Ob-Long	Small, smooth, thick skn	I	Small, needs size	I
MN 96001-2	BE		WP, Pi	Ov	Lg sz, good shp and sz, good skn	6	M sz, good shp and sz, good skn	4
MN 96001-2	BL		WP, Pi	Ob	Med sz, ok shp, skins, pink, mkt??	D	Pink color, what mkt ??	I
MN 96001-2	C	C	WP, Pi	Rnd	Med sz, unifshp, net skn	K	Pink to Orange, lt nct, mkt?	I
MN 96001-2	W	FM	WP, Pi	Rnd	Unif sz and shp, Orange-skin, mkt?	K	Smooth, pale skn	I
MN 96009-3	BE		R	Rnd	Lg sz, mod shp, good sz,,	3	Lg sz, poor shp, poor sz	3
MN 96009-3	BL		R	Rnd	Lg sz, deep eyes	D	Blky and Lg, can get deep eyes	I
MN 96009-3	C	R	R	Ov	Smooth, color ok, slough skn	I		
MN 96010-3	BE		LR	Long	Lg sz, good shp and sz, lt skn	5	S-m sz, good shp and sz, good skn	5
MN 96010-3	BL		LR	Long	Med-lg, good shp and skn	K	Unif sz, pink color	D
MN 96010-3	C	FM	LR	Ob	Needs length for FF, toopink for FM	D	Poor skn, needs length for FF	I
MN 96010-3	W	FM	LR	Ov	What market, pink skn	I	Smooth, pink	I
MN 96013-1	BE		R	Ov	M sz, good shp and sz, good skn	5	Lg-m sz, good shp and sz, ex skn	K++
MN 96013-1	BL		R	Rnd	Lg, ex shp and sz, ex skn	K	Lg sz, ex color, smooth skn	
MN 96013-1	C		R					
MN 96024-1	BE		R	Ov	M sz, good shp and sz,,	4	M sz, good shp and sz, good skn	5
MN 96039-3	BE		R	Rnd-Ov	Lg sz, mod shp, poor sz, good skn	4	Lg-M, mod shp, var sz, good skn	5
MN 96039-3	BL		R	Ov	Lg-m, goodunif, poor skn	D	Lg, Poor skn, rot here	D
MN 96039-3	C	R	R	Rnd-Ov	Good color, slough skn	I	Lg, good color, poor skn	D
MN 96040-3	BE		R	Rnd	Lg sz,		Lg-M sz, ex shp and sz, ex skn	7+
MN 96040-3	BL		R	Rnd	Lg, Poor skn, rot here	D	Smooth, attr, good color	K
MN 96040-3	C	C	R	Ov	Big, attr, Prem sz, ex color, mod skn set	I-K	Ex shp, ex color, no skn	D

Minnesota Table 3. Continued.

Tuber Characteristics										
Clone	Loc	Mkt	Tuber		Shape	Comments (Rep 1)	Rating	Comments (Rep 2)	Rating	Rating
			Type	Flesh						
MN 96001-1	BE		WP, Pi	Yel	Ov-Long	M sz, ex shp and sz, lt skn		M sz, good shp and sz, good skn	5	5
MN 96040-7	BL		R	W	Rnd	Attr, goodsz and shp		Good color and sz, skn sloughs	K	I
MN 96049-3	BE		R	W	Ov-Long	M sz,		M-S, mod shp, good sz, good skn		5
MN 96049-3	BL		R	W	Ov	Med-s, good shp, skn, and sz		Smooth, unif, good color, skins	K	K
MN 96049-3	C	R	R	W		Poor color, scurf			D	
MN 96059-1	BE		R	W	Rnd	Lg sz, poor shp, poor sz, good skn		Lg-M, good skn		4
MN 96059-1	BL		R	W	Rnd	Ex sz and shp, Lg sz, good skn, scurf		Unif sz, good color, skin is on	K	K+
MN 96072-4	BE		R	W	Rnd	M sz, good shp and sz, good skn		M sz, ex shp and sz, ex skn	6	7
MN 96072-4	BL		R	W	Rnd	Med-lg sz, ex unif shp and sz, ex skn		Med sz, lt net skn, V attr	K	K++
MN 96072-4	C	R	R	W	Rnd	Attr shp, M-lg, ok color		Attr unif shp, netskn	I	K
MN 96072-4	W	FM	R	W	Ov	Goog skn, okbut pale color		Pale red, scurf, good skn	I	I
MN 96074-3	BE		R	W	Rnd	Lg sz, good shp and sz, poor skn		Lg-m sz, good shp mod sz, good skn	4	4
MN 96074-3	BL	R	R	W	Rnd	Gets lg, great color, skins, try again??		Lg, unif shape, good skn and color	D	K
MN 96074-3	C	R	R	W	Ov	Excolor, skins		Lg, net skn, good colorand skn	K	I
MN 96074-3	W	R	R	W	Rnd-Ov	Ok skin and color, some soft tubers now		Good skn, ok color	I	I
MN 96101-1	BE		R	W	Rnd	M sz, mod shp, good sz, good skn		M sz,	4	
MN 96101-1	BL		R	Yel	Ov	Med-lg, ok here		Lg, attr color, skins	I	I
MN 96101-1	C	R	R	W	Ov-Rnd	Good color, mod skn set		Unifshp, var sz, ok color, good skn	I	K-
MN 96101-1	W	FM	R	W	Rnd	Unif shp, ok color			I	
D.R. Norland	BE		R	W	Rnd	Lg sz, ex shp and sz, good skn		Lg-m sz, good shp and sz, good skn	7	5
D.R. Norland	BL	R	R	W	Rnd	Lg, good skn and unif of shp		Good sz, color is ex, scurf	K	D
D.R. Norland	C	FM	R	W	Rnd	Attr here		Lg-m, Unif shp, ex skn color and set	I	K
D.R. Norland	W	R	R	W	Rnd	Unif sz and shp, ex skn, good color		Ok, scurf though	K	I
R. Pontiac	BE		R	W	Rnd	M sz, mod shp, good sz, good skn		M sz, mod shp, good sz, good skn	6	6
R. Pontiac	BL	R	R	W	Rnd	Var sz, ex skn, lumpy		Deep eyes, unif sz	D	D
R. Pontiac	C	R	R	W	Blky	Deep eyes, poor skn		Raised eye	D	D
R. Pontiac	W	R	R	W	Rnd	Deep eyes		Deep eyes	D	D

Minnesota Table 3. Continued.

Tuber Characteristics							
Clone	Loc	Mkt	Tuber Type	Flesh	Shape	Comments (Rep 1)	Rating
WHITE							
MN 96040-4	BE		W	Yel	Ov	Lg sz, poor shp, var sz, good skn	4
MN 96040-4	BL	C	W	Yel	Rnd	Lt skn, sloughs	1
MN 96040-4	C		W	Yel	Ov	Too few	D
MN 96040-4	W	C	W	Yel	Ov	Small, thick skn	D
MN 96041-1	BE		W	W	Rnd	S-m sz, good shp and sz, good skn	4
MN 96041-1	BL	C	W	W	Rnd	V high set, ex unif shp, good sz and skn	K
MN 96041-1	C	FF	W	W	Ob-Ov	Lt net, needs length for FF	1
MN 96041-1	W	C	W	W	Ov	V. attr, unif shape, smooth	K
MN 96048-2	BE		W	W	Ov	S sz, good shp and sz, good skn	
MN 96048-2	BL	C	W	W	Rnd	Small, poor skn	D
MN 96048-2	C	C	W	W	Ov	M-lg, smooth, poor skn	D
MN 96048-2	W	C	W	W	Ov	Var sz, smooth	D
MN 96080-7	BE		W	Yel-lt	Ov	S-m sz, good shp and sz, good skn	4
MN 96093-1	BE		W	Yel	Ov	S-m sz, poor shp, poor sz, good skn	2
MN 96099-1	BE		W	Yel-lt	Ov-Long	M sz, good shp and sz, lt skn	3
MN 96099-1	BL	C	W	Yel-lt	Ov	Flat, skins	D
MN 96099-2	BE		W, Pi	Yel-lt	Ov	Lg-M, good shp and sz, good skn	5
MN 96099-3	BE		W	Yel-lt	Ov	M-Lg, good shp var sz, good skn	5
MN 96099-3	BL		W	Yel-lt	Rnd	Lg, rot here	D
MN 96099-3	C	C	W	Yel-lt	Ov	Unif sz, ok here	K
MN 96099-3	W	C	W	Yel-lt	Rnd	V. attr, unif, good skn	K
						Lg-m sz, good shp and sz, good skn	5
						Lg-m sz, good shp and sz, good skn	4
						Med sz, var yel color flesh	1
						V. unif shp, ex here	K
						Unif sz and shp, good skn	K

Tuber Characteristics							
Clone	Tuber		Shape	Comments (Rep 1)		Rating	
	Loc	Mkt		Type	Flesh		Comments (Rep 2)	Rating
Shepody	BE		LW	W	Long	L-g sz, mod shp, good sz, good skn	6
	BL	FF	LW	W	Long	Var sz, poor shp, curves, big sz	K-
	C	F	LW	W	Long	Good length, needs better shp	D
	W	F	LW	W	Ob-Long	Ok	K
R. Burbank	BE		rus	W	Long	L-g-M, poor shp, poor sz, good skn	4
	BL	FF	rus	W	Long	Med sz, poor unif of shp, good skn	D
	C	F	rus	W	Long	Knobs, curves, points	D
	W	F	rus	W	Long	Rough, irr	D
R. Norkotah	BE		rus	W	Long	L-g sz, ex shp and sz, ex skn	7
	BL	FF	rus	W	Long	L-g, ex unif for skn shp and sz	K
	C	F	rus	W	Ob	V. attr	K
	W	F	rus	W	Ob-Long	V. attr, unif	K
Atlantic	BE		W	W	Rnd	L-g sz, good shp and sz, good skn	6
	BL	C	W	W	Rnd	L-g, good shp and sz	K
	C	C	W	W	Rnd	Attr, lt net skn	K
	W	C	W	W	Rnd	Ex sz, attr, smooth	K
NorValley	BE		W	W	Rnd	M sz,	6
	BL	C	W	W	Rnd	Attr, unif sz and shp	K
	C	C	W	W	Rnd	L-g-m, smooth, good skn	K
	W	C	W	W	Rnd	V. attr, Ex, unif shp	K
Snowden	BE		W	W	Rnd	M sz, mod shp, mod sz	5
	BL	C	W	W	Rnd	Med sz, H set, good net skn, unif shp,	K
	C	C	W	W	Rnd	Var sz, Unif shp, heavy skn	D
	W	C	W	W	Rnd	Unif shp	D
Locations - Becker (BE - Early) (BL - Late) irrigated; Crookston (C) dryland; Williston (W) irrigated.							
Market type - Chips (C), French fry (FF), Reds for fresh market (R), and Fresh Market (FM).							
Tuber Type - Red (R), Long red (LR), Russet (rus), Round White (W), and Long White (LW).							
Tuber flesh - White (W), Yellow (Yel), Purple (Pur)							
Tuber shape - Round (Rnd), Oval (Ov), Oblong (Ob), Long							
Rating - Drop (D), Intermediate (I), Keep (K).							

Minnesota Table 4. Disease expression, internal and processing quality, and yield of preliminary advanced MN seedlings at 4 harvest locations in 2000.

Clone	Loc	Visual		% Tuber Quality				% of Total				Cwt/A		Proc Color	Specific Gravity	SUC (mg/g)	GLU (mg/g)		
		PVY	PLRV	HH	IN	VD	BC	B	Sm. A	Lg. A	Over	Cull	A's					US #1	Total
RED																			
MN 96001-1	BE			5	5	0	0	7	81	13	0	0	93	443	474	1.084			
MN 96001-1	BL	+	+	0	0	0	5	12	36	47	5	0	88	540	616	1.085		0.440	
MN 96001-1	C			0	0	15	0	35	51	14	0	0	65	189	290	1.113	1.769		
MN 96001-1	W			0	0	20	0	48	43	9	0	0	52	109	207	1.106	1.515		
MN 96001-2	BE			5	0	5	0	2	32	57	9	0	98	397	406	1.081			
MN 96001-2	BL	0	+	0	0	0	0	3	12	64	22	0	97	363	373	1.078	2.062	0.232	
MN 96001-2	C			0	0	20	0	8	30	59	3	0	92	214	232	1.094	2.429		
MN 96001-2	W			0	0	0	0	7	38	55	0	0	93	228	247	1.102	2.231		
MN 96009-3	BE			0	0	0	0	4	21	36	39	0	96	366	383	1.067			
MN 96009-3	BL			0	0	0	0	4	8	53	35	0	96	417	435	1.068			
MN 96009-3	C			0	0	0	0												
MN 96010-3	BE			0	0	0	0	12	74	14	0	0	88	414	469	1.078			
MN 96010-3	BL	ND	ND	0	0	0	0	19	33	47	1	0	81	627	776	1.075		0.211	
MN 96010-3	C			0	0	15	0	15	40	45	0	0	85	232	272	1.092	2.429		
MN 96010-3	W			0	0	15	5	19	40	39	1	0	81	236	294	1.092	1.826		
MN 96013-1	BE			0	0	0	0	4	54	38	3	0	96	364	381	1.074			
MN 96013-1	BL	ND	ND	0	0	0	0	5	11	65	19	0	95	653	685	1.079	0.379		
MN 96013-1	C			0	0	0	0									1.102			
MN 96024-1	BE			0	0	0	0	4	66	28	1	0	96	336	352	1.065			
MN 96024-1	BL	+	+	0	0	0	0												
MN 96024-1	C			0	0	0	0												
MN 96039-3	BE			0	0	0	0	5	42	45	8	0	95	319	335	1.064			
MN 96039-3	BL	ND	ND	0	0	0	0	6	14	65	14	1	94	413	442	1.062	0.825		
MN 96039-3	C			0	0	0	0	7	16	57	17	4	90	102	112	1.079	1.245		
MN 96040-3	BE			0	0	0	0	2	26	57	15	0	98	474	484	1.068			
MN 96040-3	BL	+	+	0	0	0	0	4	11	49	34	2	94	558	598	1.066	0.570		
MN 96040-3	C			0	0	0	0	6	11	54	29	0	94	131	138	1.080	2.377		

Minnesota Table 4. Continued.

Clone	Loc	Visual		% Tuber Quality					% of Total				Cwt/A		Proc Color	Specific Gravity	SUC (mg/g)	GLU
		PVY	PLRV	HH	IN	VD	BC	B	Sm. A	Lg. A	Over	Cull	A's	US #1	Total			
MN 96040-7	BE			0	0	0	10	6	31	47	15	0	94	322	344	1.073		
MN 96040-7	BL	+		0	0	0	5	5	17	67	11	0	95	580	613	1.076		0.420
MN 96040-7	C			0	0	0	0											
MN 96049-3	BE			0	0	0	0	11	70	17	1	0	89	295	334	1.066		
MN 96049-3	BL			0	0	0	0	18	40	39	4	0	82	308	373	1.065		0.060
MN 96049-3	C			0	0	0	0	27	45	27	0	0	73	58	80			
MN 96059-1	BE			0	0	0	0	7	39	43	11	0	93	214	231	1.069		
MN 96059-1	BL			0	0	0	0	8	18	47	27	0	92	337	366	1.065		0.667
MN 96072-4	BE			0	0	0	0	12	68	21	0	0	88	320	362	1.069		
MN 96072-4	BL	ND		0	0	5	0	14	25	58	3	0	86	537	624	1.067		0.730
MN 96072-4	C			0	0	0	0	12	33	51	4	0	88	221	250	1.088	1.520	
MN 96072-4	W			0	0	15	0	14	36	50	0	0	86	279	323	1.085	1.350	
MN 96074-3	BE			0	0	0	0	3	21	47	29	0	97	495	509	1.059		
MN 96074-3	BL	ND		0	0	0	0	2	9	50	39	0	98	707	725	1.059		1.266
MN 96074-3	C			0	5	5	0	9	21	60	10	0	91	170	185	1.066	1.720	
MN 96074-3	W			0	0	25	0	6	21	71	2	0	94	228	243	1.076	1.659	
MN 96101-1	BE			0	20	0	0	9	63	28	1	0	91	324	355	1.074		
MN 96101-1	BL			0	0	0	5	6	17	55	21	0	94	497	529	1.074	2.076	0.723
MN 96101-1	C			0	10	15	0	19	31	48	3	0	81	112	138	1.097	1.515	
MN 96101-1	W			0	0	10	0	22	47	31	0	0	78	181	232	1.098	1.824	
D.R. Norland	BE			0	5	0	10	4	53	41	2	0	96	529	551	1.064		
D.R. Norland	BL	+		0	0	0	0	8	25	63	5	0	92	504	547	1.055		1.155
D.R. Norland	C			0	0	5	0	13	31	56	0	0	87	225	257	1.075	1.129	
D.R. Norland	W			0	0	10	0	12	38	49	0	0	88	207	236	1.071	1.032	
R. Pontiac	BE			0	0	0	0	6	46	46	2	0	94	526	562	1.063		
R. Pontiac	BL	ND		5	0	0	0	6	21	68	4	0	94	638	682	1.068		1.561
R. Pontiac	C			0	0	20	0	6	17	69	8	0	94	301	319	1.082	2.055	
R. Pontiac	W			0	0	15	0	7	23	71	0	0	93	272	290	1.086	2.708	

Minnesota Table 4. Continued.

Clone	Loc	Visual		% Tuber Quality				B	Sm. A			% of Total			Cwt/A		Proc Color	Specific Gravity	SUC (mg/g)	GLU (mg/g)
		PVY	PLRV	HH	IN	VD	BC		B	Sm. A	Lg. A	Over	Cull	A's	US #1	Total				
WHITE																				
MN 96040-4	BE			0	0	0	5	11	72	14	3	0	0	89	298	338	5	1.084		
MN 96040-4	BL	+	+	0	0	0	0	30	39	31	0	0	0	70	170	243		1.101		0.109
MN 96040-4	C			0	0	0	0	43	43	14	0	0	0	58	58	94		1.128		
MN 96040-4	W			0	0	0	0	54	38	8	0	0	0	46	44	94		1.111		
MN 96041-1	BE			5	0	0	0	11	77	13	0	0	0	89	480	537	4	1.072		
MN 96041-1	BL	+	+	0	0	0	0	14	32	49	4	1	1	85	605	711		1.080		
MN 96041-1	C			0	0	0	0	33	44	23	0	0	0	67	152	225		1.096		
MN 96041-1	W			0	0	0	0	33	49	18	0	0	0	67	163	243		1.097		
MN 96048-2	BE			0	0	0	10	17	77	7	0	0	0	83	407	487	5	1.087		
MN 96048-2	BL	+	+	0	0	0	0	27	37	36	0	1	1	73	421	576		1.092		
MN 96048-2	C			0	0	0	0	33	34	30	3	0	0	67	163	243		1.129		
MN 96048-2	W			0	0	0	0	53	40	7	0	0	0	47	102	218		1.113		
MN 96080-7	BE			0	0	0	0	13	72	15	0	0	0	87	288	330	3	1.083		
MN 96080-7	BL	+	+	0	0	0	0													
MN 96093-1	BE			30	0	0	0	14	54	26	6	0	0	86	199	231	5	1.072		
MN 96093-1	BL	+	+	0	0	0	0													
MN 96099-1	BE			35	10	0	5	6	54	39	1	0	0	94	422	450	6	1.064		
MN 96099-1	BL			0	0	0	0	7	21	62	8	2	2	91	609	667		1.090		
MN 96099-2	BE			45	0	0	15	5	36	51	8	0	0	95	393	413	6	1.059		
MN 96099-2	BL	0	+	0	0	0	0													
MN 96099-3	BE			0	0	5	0	9	47	40	4	0	0	91	389	426	5	1.074		
MN 96099-3	BL	0	+	0	0	0	0	15	29	50	5	0	0	85	439	518		1.083		
MN 96099-3	C			0	0	0	0	12	34	52	3	0	0	88	218	247		1.099		
MN 96099-3	W			0	0	0	0	23	60	18	0	0	0	77	181	236		1.099		

Minnesota Table 4. Continued.

Clone	Loc	Visual		% Tuber Quality				% of Total				Cwt/A		Proc Color	Specific Gravity	SUC (mg/g)	GLU
		PVY	PLRV	HH	IN	VD	BC	B	Sm. A	Lg. A	Over	Cull	A's	US #1	Total		
Shepody	BE			5	0	0	0	4	44	24	28	0	96	375	390	1.078	
Shepody	BL	ND	ND	0	0	10	0	3	12	56	28	1	96	616	642	1.089	0.200
Shepody	C			0	0	0	0	8	15	56	21	0	92	221	239	1.091	
Shepody	W			0	0	0	0	13	37	50	0	0	87	257	297	1.093	
R. Burbank	BE			5	5	0	5	9	71	21	0	0	91	297	325	1.076	
R. Burbank	BL	0	0	0	0	0	0	9	24	36	30	0	91	500	551	1.083	0.399
R. Burbank	C			0	0	0	0	11	24	45	20	0	89	232	261		
R. Burbank	W			0	0	0	15	37	29	30	5	0	63	120	185	1.095	1.535
R. Norkotah	BE			5	0	0	0	3	57	25	15	0	97	404	417	1.072	
R. Norkotah	BL	ND	ND	0	0	0	0	4	15	55	26	0	96	558	580	1.070	0.450
R. Norkotah	C			0	0	0	0	7	11	54	27	0	93	247	265	1.088	
R. Norkotah	W			0	0	0	0	17	40	43	0	0	83	181	218	1.091	
Atlantic	BE			20	15	0	15	4	34	42	20	0	96	389	405	1.079	
Atlantic	BL	+	0	0	0	0	0	4	12	65	17	2	94	605	642	1.095	
Atlantic	C			5	0	0	0	6	23	57	14	0	94	178	189	1.110	
Atlantic	W			0	0	0	0	14	24	55	6	0	86	192	225	1.112	
NorValley	BE			0	5	5	0	6	55	37	2	0	94	485	513	1.085	
NorValley	BL	0	+	0	0	0	0	11	24	56	8	1	88	529	598	1.084	
NorValley	C			0	5	0	0	13	26	56	5	0	87	283	323	1.100	
NorValley	W			0	0	0	0	18	34	48	0	0	82	218	265	1.089	
Snowden	BE			5	0	0	0	8	48	35	8	0	92	371	404	1.082	
Snowden	BL	0	0	0	0	0	0	8	25	60	7	1	91	562	613	1.093	
Snowden	C			0	0	0	5	21	35	43	2	0	79	181	228	1.103	
Snowden	W			0	0	0	0	20	44	35	1	0	80	272	341	1.104	

Locations - Becker (BE - Early) (BL - Late) irrigated; Crookston (C) dryland; Williston (W) irrigated.

Visual symptom expression of PVY and PLRV - Yes (+), and No (-).

Internal Defects - 10 large tubers cut; Hollow heart (HH), Internal necrosis (IN), Vascular discoloration (VD), Brown center (BC).

Size Grade - B \leq 1 7/8 (4oz.), Sm. A = 1 7/8 (4oz.) - 2 1/4 (6oz.), Lg A = 2 1/4 (6oz.) - 3 1/2 (12oz.), Over > 3 1/2 (12oz.).

Processing color - SFA 1-5 (poor), Agron (> 60 acceptable), and USDA FF color standards (000-light to 4-dark).

Minnesota Table 5. Tuber characteristics, rating, market, and disease reaction of intermediate (40-Hill) generation MN seedlings at 2 harvest locations in 2000.

Clone	Tuber Characteristics						Disease / Pest			
	Loc	Mkt	Tuber		Shape	Comments	Rating	Scab		CPB % Defol
			Type	Flesh				Sev	Cover	
MN 97001-1	BL	C	W	W	Rnd	Med sz, unif sz and shp	D	3	1	
MN 97001-1	C	C	W	W	Rnd	No yld	D			
MN 97006-6	BL	C	W	W	Rnd-Ov	M-l, oval for chips	I	5	2	
MN 97007-1	BL	C	W	W	Rnd	Med, unif shp	K	0	0	3.1
MN 97007-1	C	C	W	W	Rnd	Unif shp	K			
MN 97014-1	BL	C	W	W	Rnd	Deep eyes, unif shp though	D	5	3	2.2
MN 97014-1	C	C	W	Yel-lt	Rnd	Unif, small-med sz				
MN 97016-1	BL	C	W, Pi	W	Rnd	Unif sz and shp, good skn, alot here	K	0	0	2.8
MN 97016-1	C	C	W, Pi	W	Rnd	Med-small, what mkt?	I			
MN 97019-1	BL	R	R	W	Rnd	Pink color, poor skn	D	5	3	4.1
MN 97019-1	C	R	R	W	Rnd	Attr color, ok skn	K			
MN 97019-2	BL		W	W	Rnd	Med, unif sz and shp, raised eyes	D	5	1	4.1
MN 97019-2	C	C	W, Pi	W	Ov	Rough, raised eye > R. Pontiac	D			
MN 97031-5	BL	FF	LW	Yel	Ob	Lg-m, ok some slough skn	I	5	3	1.8
MN 97031-5	C	C	W	W	Ov	Smooth, oik here good skn	K	0	0	3.4
MN 97031-6	BL	C	W	Yel	Rnd	S-m, heavy net	K			
MN 97031-6	C	C	W	W	Rnd	Ok, lt net skin	K			
MN 97031-9	BL	FF	LW	W	Ob	Needs sz, mostly < 6oz., good skn	I	5	3	3.1
MN 97031-9	C	F	W	W	Ob	Lt net skn, needs length	D			
MN 97032-1	BL	C	W	W	Rnd	Lg, net skn, attr, a lot	K	5	3	3.6
MN 97032-1	C									
MN 97034-1	BL	C	W	Yel-lt	Rnd	Ok, skins	I	3	2	3.5
MN 97034-1	C	C	W	W		Marginal	I			
MN 97034-2	BL	FF	LW, Pi	Yel	Ob-Long	Lg, poor skn set, FF	K	2	2	4.3
MN 97034-2	C	F	rus	W						
MN 97042-2	BL		LW	W		Poor skn				
MN 97042-2	C	F	LW	W	Ov-Ob	Lg	D	5	2	3.5
MN 97043-1	BL	FF	rus	W	Long	V. attr, lt skn, FM, K++	D			
MN 97043-1	C	F	rus	W	Ob-Long	Big, fills-out, lt skn	K++	0	0	3.3
MN 97043-2	BL	FF	rus	W	Long	Lg, long > Shepody, fills-out, poor skn	K+			
MN 97043-2	C	C	W	W	Blky	Big, blocky, mod shp, slough skn	I	3	1	3.0
MN 97044-3	BL		W	W	Ov	Med-lg, high set, poor skn	D			
MN 97044-3	C	C	W	Yel	Ob	Med-lg, high set, poor skn	K	4	1	2.3
MN 97047-1	BL		W	Yel	Ob	Flat, skns, ok here	I			
MN 97047-1	BL		W	Yel	Rnd	Lg, ex skn, good sz	K	5	4	3.3
MN 97047-1	C	C	W	W	Rnd	Unif sz and shp, lt net skn, ex	K++			

Minnesota Table 5. Continued.

Clone	Tuber Characteristics							Disease / Pest			
	Loc	Mkt	Tuber		Flesh	Shape	Comments	Rating	Scab		CPB % Defol
			Type	Tuber					Sev	Cover	
MN 97542-1	BL	FF	W	Cr	Ob	Attr, smooth, needs length, good skn	1	5	3	2.1	
MN 97542-1	C	C	W	W	Ov-Rnd	Small, nothing special	D				
MN 97547-2	BL		W	W	Rnd	Lg, lt skn and sloughs	D	5	3	3.6	
MN 97547-2	C	C	W								
MN 97577-1	BL		W	W	Rnd	Unif sz and shp, poor yld	K	5	3		
MN 97577-1	C	C	W	W	Rnd	Too few and small, lt net skn	D				
MN 97578-1	BL	FF	rus	W	Long	Sm, lg set, good skn	D	5	2	2.2	
MN 97578-1	C	F	rus	W	Ov	Needs length, lt net skn	D				
MN 97629-1	BL	FF	rus	W	Long	Med-lg, good skn	D	0	0	4.5	
MN 97629-1	C	F	rus	W	Long-Ob	Needs length, great shape	1+				
MN 97629-2	BL	FF	rus	W	Long	Med-sm, points, pr	D	5	3	1.9	
MN 97629-2	C	F	LW	W	Ob	Big, need length for FF	1				
MN 97630-3	BL	C	W	W	Rnd	Lg, flat, unif shp	1	4	2	1.2	
MN 97630-3	C	C	W	W	Rnd	Raised eye, rough	D				
MN 97639-1	BL	FF	rus	W	Long	Lg, attr skn sz and shp, ck for internal	D	4	4	3.0	
MN 97639-1	C	F	LW	W	Ob-Long	Big, fills-out, poor skn, gets blk	1				
MN 97646-2	BL	C	W	Yel	Rnd	Med, smooth, lt net	K	5	2	3.6	
MN 97646-2	C	C	W	Yel-lt	Ov	Unif sz, Ok	1				
D.R. Norland	BL	R	R	W	Rnd	Lg set, unif shp, good skn	K	3	2	3.1	
D.R. Norland	C	R	W	W	Ov	Ex skin, color and set	K				
R. Pontiac	BL	R	R	W	Rnd	Deep eyes on some	D	5	4	2.0	
R. Pontiac	C	R	R	W	Rnd	Raised eye, rough	D				
Shepody	BL	FF	LW	W	Long	Var sz, some curves	K	5	4	1.5	
Shepody	C	F	W	W	Long	Poor skn, misshapen	D				
R. Burbank	BL	FF	rus	W	Long	Off shappen, knobs, good skn	D	0	0	4.1	
R. Burbank	C	F	rus	W	Long	Irregular shape	D				
R. Norkotah	BL	FF	rus	W	Long	Attr, long, smooth, unif shp	K	1	1	2.8	
R. Norkotah	C	F	rus	W	Long	Unif sz and shp, lg get pr	K				
Atlantic	BL	C	W	W	Rnd	Lg, attr, keep	K	5	3	2.1	
Atlantic	C	C	W	W	Rnd	Unif shp, netted skn	K				
NorValley	BL	C	W	W	Rnd	Lg, unif shp, var sz, slough skn	K	4	1	3.0	
NorValley	C	C	W	W	Rnd	Unif shp, var sz	K				
Snowden	BL	C	W	W	Rnd	Attr but some raised eye, Lg-m	K	5	2	1.5	
Snowden	C	C	W	W	Rnd	V. poor	D				

Minnesota Table 6. Internal and processing quality, and yield of intermediate (40 Hill) generation MN seedlings at 2 harvest locations in 2000.

Clone	Loc	% Tuber Quality				% of Total				Cwt/A		Proc Color	Specific Gravity	SUC (mg/g)	GLU (mg/g)
		HH	IN	VD	BC	B	Sm. A	Lg. A	Over	Cull	A's	US #1	Total		
MN 97001-1	BL	0	0	0	50	15	21	58	3	3	82	196	239	47	1.066
MN 97001-1	C	0	0	0	80	14	43	43	0	0	86	87	102	51	1.073
MN 97006-6	BL	0	0	0	0	7	16	64	12	0	93	450	486	59	1.085
MN 97006-6	C														
MN 97007-1	BL	0	0	0	0	16	29	51	4	0	84	312	370	58	1.089
MN 97007-1	C	0	0	0	0	30	45	25	0	0	70	102	145	60	1.107
MN 97014-1	BL	0	0	0	0	10	34	52	4	0	90	479	529	58	1.091
MN 97014-1	C	0	0	0	0	24	57	19	0	0	76	203	268	54	1.109
MN 97016-1	BL	0	0	60	0	17	31	48	4	0	83	587	711	59	1.075
MN 97016-1	C	0	0	0	0	14	38	48	0	0	86	181	210	62	1.086
MN 97019-1	BL	0	0	0	20	9	22	64	4	0	91	442	486	1	1.069
MN 97019-1	C	0	0	0	0	21	37	42	0	0	79	109	138		1.091
MN 97019-2	BL	0	0	0	0	24	35	42	0	0	76	399	522	52	1.071
MN 97019-2	C	0	0	0	0	48	28	24	0	0	52	94	181	54	1.099
MN 97031-5	BL	0	0	0	0	9	10	67	14	0	91	457	500		
MN 97031-5	C	0	0	0	0	6	28	56	9	0	94	218	232	57	1.091
MN 97031-6	BL	0	0	0	0	25	42	33	0	0	75	326	435	55	1.083
MN 97031-6	C	0	0	0	0	26	39	35	0	0	74	167	225	58	1.105
MN 97031-9	BL	0	0	0	0	14	26	60	0	0	86	268	312	56	1.079
MN 97031-9	C	0	0	0	0	11	28	56	6	0	89	116	131	0	1.095
MN 97032-1	BL	0	50	0	0	5	14	61	18	1	94	631	674	1	1.072
MN 97032-1	C	10	0	0	10	11	19	48	22	0	89	174	196	61	1.093
MN 97034-1	BL	0	0	0	0	9	16	58	18	0	91	297	326	62	1.092
MN 97034-1	C	0	0	0	0	16	21	63	0	0	84	116	138	62	1.086
MN 97034-2	BL	0	0	0	0	7	16	49	28	0	93	464	500	00	1.075
MN 97034-2	C	0	0	0	0	18	24	59	0	0	82	102	123	60	1.090
MN 97042-2	BL	0	0	0	0	14	21	60	5	0	86	261	305	00	1.083
MN 97042-2	C	0	0	0	0	13	22	65	0	0	87	145	167	00	1.098
MN 97043-1	BL	0	0	0	0	11	23	59	7	0	89	283	319	1	1.075
MN 97043-1	C	10	0	0	0	4	12	54	31	0	96	181	189	1	1.087
MN 97043-2	BL	10	0	0	0	1	7	55	37	0	99	696	703	1	1.102
MN 97043-2	C	0	0	0	0	4	7	54	36	0	96	196	203	57	1.091
MN 97044-3	BL	0	0	0	0	5	19	71	4	0	95	674	711	54	1.107
MN 97044-3	C	0	0	0	0	8	24	68	0	0	92	167	181	58	1.117
MN 97047-1	BL	0	0	0	0	4	6	65	26	0	96	754	783	55	1.092
MN 97047-1	C	0	0	0	0	8	17	69	6	0	92	239	261	61	1.101

Minnesota Table 6. Continued.

Clone	Loc	% Tuber Quality					% of Total			Cwt/A		Proc Color	Specific Gravity	SUC (mg/g)	GLU
		HH	IN	VD	BC	B	Sm. A	Lg. A	Over	Cull	A's	US #1	Total		
MN 97049-1	BL														
MN 97049-1	C														
MN 97049-2	BL	0	0	0	0	6	15	54	18	7	87	421	486	1.085	
MN 97049-2	C	0	0	0	0	10	19	48	24	0	90	138	152	1.090	2.0075
MN 97050-1	BL	0	0	10	0	13	23	57	6	0	87	297	341	1.084	3.0547 0.7641
MN 97050-1	C	0	0	0	0	15	45	40	0	0	85	123	145	1.086	4.8023
MN 97054-1	BL	10	0	0	20	6	14	58	22	0	94	442	471	1.080	
MN 97054-1	C	10	0	0	20	6	11	61	22	0	94	123	131	1.091	
MN 97054-2	BL	0	0	0	0	5	9	43	43	0	95	305	319	1.073	
MN 97054-2	C	0	0	0	0	6	19	75	0	0	94	109	116	1.083	
MN 97056-1	BL	10	0	0	0	7	16	57	20	0	93	377	406	1.069	
MN 97056-1	C	0	0	0	0	13	27	47	13	0	87	94	109	1.082	
MN 97060-1	BL	10	0	0	0	9	28	51	8	4	87	334	384	1.074	
MN 97060-1	C	0	0	0	0	14	27	41	18	0	86	276	319	1.098	
MN 97060-2	BL	0	0	0	0	6	16	63	14	0	94	428	457	1.074	
MN 97060-2	C	0	0	0	0	14	32	41	14	0	86	138	160	1.079	
MN 97083-2	BL	0	0	0	0	18	36	43	2	0	82	261	319	1.074	
MN 97083-2	C	0	0	0	0	17	42	42	0	0	83	73	87	1.098	
MN 97122-2	BL	0	0	0	0	38	35	26	0	0	62	152	247	1.078	
MN 97122-2	C	0	0	0	0	86	14	0	0	0	14	7	51	1.080	
MN 97124-1	BL	0	0	0	0	6	15	65	14	0	94	551	587	1.078	
MN 97124-1	C	0	0	0	0	8	12	64	16	0	92	167	181	1.101	
MN 97131-1	BL	10	0	0	30	11	27	62	0	0	89	239	268	1.072	1.9333 0.3601
MN 97131-1	C	0	0	20	0	29	29	43	0	0	71	36	51	1.082	2.0167
MN 97524-1	BL	40	0	0	0	21	36	43	0	0	79	384	486	1.105	
MN 97524-1	C	0	0	0	0	39	50	11	0	0	61	80	131	1.104	
MN 97524-2	BL	0	0	0	0	41	37	22	0	0	59	116	196	1.077	
MN 97524-2	C	0	0	0	0	50	50	0	0	0	50	22	44		
MN 97524-3	BL	0	0	0	0	27	46	27	0	0	73	276	377	1.105	
MN 97524-3	C	0	0	0	0	50	40	10	0	0	50	36	73	1.097	
MN 97524-4	BL	0	0	0	0	32	42	26	0	0	68	189	276	1.090	
MN 97524-4	C	0	0	0	0	58	32	11	0	0	42	58	138	1.100	
MN 97528-1	BL	0	0	0	0	18	27	51	4	0	82	290	355	1.100	
MN 97528-1	C	0	0	0	0	19	43	38	0	0	81	123	152	1.096	

Minnesota Table 6. Continued.

Clone	Loc	% Tuber Quality				% of Total				Cwt/A			Proc	Specific Gravity	SUC (mg/g)	GLU (mg/g)
		HH	IN	VD	BC	B	Sm. A	Lg. A	Over	Cull	A's	US #1	Total	Color		
MN 97542-1	BL	0	0	0	0	17	39	42	1	0	83	428	515	1	1.089	
MN 97542-1	C	0	0	0	0	31	45	24	0	0	69	145	210	54	1.098	
MN 97547-2	BL	0	0	0	0	5	15	56	24	0	95	587	616	56	1.080	
MN 97547-2	C	0	0	0	0	8	31	54	8	0	92	87	94	59	1.086	
MN 97577-1	BL	0	0	0	0	9	21	59	12	0	91	225	247	58	1.088	
MN 97577-1	C	0	0	0	0	43	29	29	0	0	57	29	51	48	1.096	
MN 97578-1	BL	0	0	0	20	28	46	26	0	0	72	297	413	00	1.115	
MN 97578-1	C	0	0	0	0	50	35	15	0	0	50	73	145	000	1.110	
MN 97629-1	BL	0	0	0	0	18	34	45	0	2	80	254	319	0	1.070	
MN 97629-1	C	50	0	0	0	19	38	42	0	0	81	152	189	1	1.074	
MN 97629-2	BL	0	0	0	0	27	25	41	3	3	70	319	457	0	1.071	
MN 97629-2	C	0	20	0	0	18	27	48	6	0	82	196	239	00	1.093	
MN 97630-3	BL	0	0	0	0	3	13	74	10	0	97	493	508	57	1.095	
MN 97630-3	C	0	0	0	0	18	41	41	0	0	82	102	123	60	1.101	
MN 97639-1	BL	0	0	10	0	8	16	69	3	3	89	392	442	1	1.081	
MN 97639-1	C	0	0	0	0	8	20	52	20	0	92	167	181	1	1.096	
MN 97646-2	BL	0	0	0	10	15	27	58	0	0	85	297	348	55	1.104	
MN 97646-2	C	0	0	0	10	24	29	19	29	0	76	116	152	55	1.099	
D.R. Norland	BL	0	0	0	0	5	23	67	6	0	95	602	631	1	1.054	1.3431
D.R. Norland	C	0	0	20	0	11	34	54	0	0	89	225	254	1	1.077	1.3431
R. Pontiac	BL	0	0	0	0	19	17	60	5	0	81	602	740	1	1.071	1.7642
R. Pontiac	C	0	0	0	0	2	15	72	11	0	98	334	341	0	1.077	1.7642
Shepody	BL	0	0	10	0	6	17	63	14	0	94	551	587	0	1.087	
Shepody	C	0	0	0	0	5	15	49	31	0	95	268	283	0	1.085	
R. Burbank	BL	0	0	0	0	7	15	56	22	0	93	551	595	00	1.079	
R. Burbank	C	0	0	0	0	6	16	61	16	0	94	210	225	00	1.080	
R. Norkotah	BL	0	0	20	0	5	9	60	26	0	95	551	580	1	1.068	
R. Norkotah	C	0	0	0	0	6	9	63	22	0	94	218	232	2	1.088	
Atlantic	BL	0	0	0	0	2	9	48	40	2	96	703	732	55	1.096	
Atlantic	C	0	0	0	0	4	15	52	30	0	96	189	196	50	1.109	
NorValley	BL	0	0	10	0	5	13	66	16	0	95	696	732	57	1.083	
NorValley	C	0	0	10	0	13	17	52	17	0	87	145	167	60	1.096	
Snowden	BL	10	0	0	10	6	15	71	8	0	94	537	573	60	1.080	
Snowden	C	0	0	0	0	18	36	45	0	0	82	65	80	65	1.106	

Nebraska Potato Variety Trials

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Introduction

In 2000, trials were conducted at Alliance, Champion, Minden, O'Neill, and Scottsbluff. There were a total of 56 entries: 26 russet, 16 white, 9 red, 4 yellow-skinned and -fleshed, and one russet-skinned with yellow flesh. All but one russet and a red were planted at Scottsbluff. White, chipping entries were planted at Alliance (12) and Minden (14). Russet, red and yellow entries were planted at Imperial (40) and O'Neill (36). Nebraska participated in the North Central Regional (NCR) trial (27 entries), conducted at Scottsbluff.

Materials, Methods and Conditions

Soils were sandy loams; pHs ranged from 5.5 (Minden) to 8.1 (Alliance), and organic matter content was between 0.9 (O'Neill) and 1.2% (Scottsbluff). The ranges of major fertilizers were 140-310 lb N/a, 80-140 lb P₂O₅/a, 0-320 lb K₂O/a and 0-95 lb S/a. Boron, calcium and magnesium were added at some sites. Seed pieces were cut, treated with TOPS MZ and stored for several days before planting. Growers used their conventional practices. Insecticides were Admire or Thimet applied at planting and, depending on location, post-emergence applications of Baythroid, Dimethoate, Furadan, Monitor, Phaser, Pounce, or Provado were used based on pests. Depending on location, Dual, Matrix, Prowl, or Sencor were applied pre-emergence; no herbicide, or Lorox, Matrix or Poast were applied post-emergence. Disease treatments, depending on location, were Bravo Zn, Curzate, Dithane, Penncozeb, Quadris, Ridomil, and SuperTin. Vines died either with diquat, glufosinate-ammonium, sulfuric acid or vine beating, or were harvested without vine kill. Trials were conducted under center-pivot irrigation except at Scottsbluff where it was under a linear-move system. The trial design was strip plots at all locations except Alliance, where it was an RCBD with three replicates. In Alliance, 20 plants (16 ft) were harvested in each replicate. Twenty plants were harvested at Minden (15 ft) and O'Neill (17 ft). At Champion and Scottsbluff, 24

plants (20 ft) were harvested. The season was generally characterized as unusually dry, hot, and windy. Rainfall was below normal.

Yield data were taken on tubers under and over 1 7/8 inch diameter. Within two weeks after harvest, visual tuber defects were determined and so was specific gravity using a SFA hydrometer. Fry color after one month storage at 50°F was estimated with an SFA/PC color chart.

Results and Discussion

YIELD (Tables 2a and 3a):

Among chipping entries, WIS75-30 (AC Glacier Chip) stood out at all three locations with the highest overall average yield. Other high yielding clones, although not tested at all locations, were ND2470-27, ND5822C-7 and NDTX4930-5w. MN19157 was high yielding in the Panhandle. Among yellows, AC Brador and NY101 (Keuka Gold) were high yielding. The highest yields among russets were Ranger Rus., Rus. Norkotah CO #8 and W1348rus. Other high yielders to note were Rus. Norkotah TX #223, A90586-11 and CO85026-4. A86-102-6 continued to give high yields as in previous years and is recommended for large-plot grower trials. ATX549-1 and ATX84706-2 did well, but not at Scottsbluff. Among red entries, A82705-1R did best. ND5084-3R had the highest yield but over half the tubers were oversize and possibly not marketable.

SPECIFIC GRAVITY (Tables 2b and 3b):

Chip entries, except NY103 (Reba), had specific gravities >1.085 at the three locations. Among table entries, the best gravities were from B9922-11 (Amey) and MSC148-18 at all three locations. Others with high gravities were Ranger Rus., A90586-11, AC89536-5, ATX549-1, and CO85026-4. Among yellows, Yukon Gold had good gravity as a table entry.

COOKING COLOR (Tables 2b and 3b):

All whites gave light colored chips, < 1.5 on the color scale; AC Brador, a yellow, was darkest among the chip entries. Among russets, the lightest fries came from MSC148-8; also excellent was TX1385-12, < 2 on the scale. Most entries were between 2 and 3. Yellow entries gave light fries, between 1.5 and 2 on the scale.

TUBER DEFECTS (Tables 2c, 2d, 3c, and 3d):

Off-Shape:

Tuber off-shape of chip entries was observed at Scottsbluff; these were AC Brador (a yellow chipper), AC89653-3, MSB076-2, ND5822C-7, NDTX4930-5w, and W1S75-30 (AC Glacier Chip). Russets showed the most off-shape response and this was primarily at Scottsbluff but did occur at the other sites. The most severe were Russet Burbank (all locations) and W1348rus (two locations). Other russets with off-shape were the Russet Norkotah strains except for strain TX#102, A86-102-6, ATX19202-3rus, and TX1385-12. Among reds, only A82705-1R (IdaRose) showed notable off-shape at Scottsbluff.

Common Scab:

Incidence appeared in the Panhandle only. Chipping entries showing common scab (>9% at both locations) were Atlantic, Snowden, MSE018-1, and ND2676-10 (Dakota Pearl). Others, not tested at Alliance, to note were MN19157, ND2470-27 and NDTX4930-5w. Among the table entries, common scab only appeared in Scottsbluff; in the russets ATX84706-2 and MSB106-7, the reds DT6063-1R (Cherry Red) and W84-75R (Red Pearl), and the yellow-fleshed Yukon Gold and TX1523-1ru/y.

Black Scurf:

Among chipping entries, black scurf was not a factor. Among russets, ATX549-1 showed black scurf at all three locations. Others showing at least 10% incidence at two locations were AC83064-1 (Keystone Rus.) and MSB106-7. Among reds, A82705-1R (IdaRose) was affected.

Hollow Heart:

Among chipping entries, hollow heart occurred at Alliance and entries with > 9% incidence were AC89653-3 and MSB076-2. Among table entries, hollow heart was not a factor at any location.

MATURITY (Table 4):

Ratings were taken weekly from 16 August to 20 September. A severe snow storm occurred 22-24 September, thus ending evaluations. Table 4 identifies entries showing greater than 50% senescence at each reading date.

Nebraska Table 1. Key dates for each trial, 1999.

	Alliance	Imperial	Minden	O'Neill	Scottsbluff
Planting	5/3	4/10	4/26	4/26	4/25
Emerged	5/~24	5/~8	5/~18	5/~18	5/17
Death	8/28	8/23	--	8/30	9/20
Harvest	9/7	9/12	9/13	9/14	9/20
planting to death	117	135	140	126	148
emerged to death	96	107	118	105	126

Nebraska Table 2a. Yields at Alliance (ALL), Minden (MIN) and Scottsbluff (SBF).

Chipping Entries	Total Yield, cwt/ac				Yield of >1 7/8" Tubers			
	ALL	MIN	SBF	ave.	ALL	MIN	SBF	ave.
Atlantic	519	532	479	510	501	513	472	495
AC Brador *	528	523	566	539	516	503	552	524
Snowden	555	474	515	515	528	455	508	497
AC87340-2	567	523	472	521	543	503	443	496
AC89653-3	564	465	428	486	555	397	408	453
MN18747	.	494	501	.	.	465	494	.
MN19157	.	426	559	.	.	397	545	.
MSB076-2	461	416	327	401	449	397	319	388
MSE018-1	464	368	348	393	452	348	327	376
ND2470-27	.	.	552	.	.	.	530	.
ND2676-10 ¹	558	378	356	431	543	358	348	416
ND5822C-7	.	.	559	.	.	.	530	.
NDTX4930-5w	.	.	552	.	.	.	545	.
NY87 ²	522	474	486	494	513	445	486	481
NY103 ³	525	474	436	478	510	455	421	462
W1431	413	455	414	427	388	436	399	408
WIS75-30 ⁴	567	494	624	562	555	494	617	555
site means:	520	467	481	489	504	440	467	470
lsd (0.05):	97				98			

* yellow-fleshed ¹ Dakota Pearl ² Reba ³ Eva ⁴ AC Glacier Chip

Nebraska Table 2b. Specific gravity and fry color at Alliance (ALL), Minden (MIN) and Scottsbluff (SBF).

Chipping Entries	Specific Gravity, (10 ⁻³)+1				Chip Color Chart			
	ALL	MIN	SBF	ave.	ALL	MIN	SBF	ave.
Atlantic	99	94	96	96	2	1	1	1.3
AC Brador *	96	81	95	91	1	2	2.5	1.8
Snowden	96	85	93	91	1	1	1	1
AC87340-2	97	78	89	88	1	1	1	1
AC89653-3	95	84	88	89	1	1	1	1
MN18747	.	65	65	.	.	1	1	.
MN19157	.	83	90	.	.	1	2	.
MSB076-2	93	85	95	91	2	1	1	1.3
MSE018-1	95	87	91	91	1	1	1	1
ND2470-27	.	.	83	.	.	.	1	.
ND2676-10 ¹	99	83	86	89	1	1	1	1
ND5822C-7	.	.	89	.	.	.	2.5	.
NDTX4930-5w	.	.	85	.	.	.	1	.
NY87 ²	96	94	90	93	1	1	1	1
NY103 ³	93	75	76	81	1	1	1	1
W1431	98	97	93	96	1	1	2	1.3
WIS75-30 ⁴	94	83	91	89	1	1	1	1
site means:	96	84	88	89	1	1	1	1.1

* yellow-fleshed ¹ Dakota Pearl ² Reba ³ Eva ⁴ AC Glacier Chip

Fry color: 1 = lightest to 5 = darkest. Color rating greater than 2 may be unacceptable for chips and greater than 3 may be unacceptable for fries.

Nebraska Table 2c. Off-shape and common scab at Alliance (ALL), Minden (MIN) and Scottsbluff (SBF).

Chipping Entries	% Off-Shape				% Common Scab			
	ALL	MIN	SBF	ave.	ALL	MIN	SBF	ave.
Atlantic	0	0	2	1	14	0	12	9
AC Brador *	0	2	17	6	15	0	0	5
Snowden	1	0	2	1	19	0	27	15
AC87340-2	0	0	5	2	0	0	6	2
AC89653-3	0	0	15	5	5	0	18	8
MN18747	.	1	9	.	.	0	0	.
MN19157	.	0	4	.	.	0	23	.
MSB076-2	1	0	13	5	0	0	17	6
MSE018-1	0	0	0	0	8	0	43	17
ND2470-27	.	.	0	.	.	.	16	.
ND2676-10 ¹	0	0	2	1	13	0	10	8
ND5822C-7	.	.	21	.	.	.	6	.
NDTX4930-5w	.	.	19	.	.	.	23	.
NY87 ²	1	0	3	1	9	0	0	3
NY103 ³	0	1	0	0	7	0	43	17
W1431	0	0	2	1	10	0	5	5
WIS75-30 ⁴	0	0	11	4	7	0	6	4
site means:	<1	<1	7	2	9	0	15	8

* yellow-fleshed ¹ Dakota Pearl ² Reba ³ Eva ⁴ AC Glacier Chip

Nebraska Table 2d. Black scurf and vascular discoloration at Alliance (ALL), Minden (MIN) and Scottsbluff (SBF).

Chipping Entries	Black Scurf				Hollow Heart			
	ALL	MIN	SBF	ave.	ALL	MIN	SBF	ave.
Atlantic	0	0	0	0	4	0	1	1
AC Brador *	0	0	0	0	6	0	0	2
Snowden	0	0	0	0	5	0	0	2
AC87340-2	0	0	0	0	7	0	0	2
AC89653-3	0	0	0	0	11	1	0	4
MN18747	.	0	0	.	.	0	0	.
MN19157	.	0	0	.	.	0	5	.
MSB076-2	0	0	0	0	10	0	0	3
MSE018-1	0	0	0	0	1	0	0	0
ND2470-27	.	.	0	.	.	.	0	.
ND2676-10 ¹	0	0	0	0	0	0	0	0
ND5822C-7	.	.	0	.	.	.	0	.
NDTX4930-5w	.	.	0	.	.	.	0	.
NY87 ²	0	0	0	0	0	4	0	1
NY103 ³	0	5	0	2	6	0	0	2
W1431	0	0	0	0	0	0	0	0
WIS75-30 ⁴	0	3	0	1	3	0	0	1
site means:	0	<1	0	<1	4	<1	<1	2

* yellow-fleshed ¹ Dakota Pearl ² Reba ³ Eva ⁴ AC Glacier Chip

Nebraska Table 3a. Yields at Imperial (IMP), O'Neill (O'N) and Scottsbluff (SBF).

Table Entries	Total Yield, cwt/ac				Yield of >1 7/8" Tubers			
	IMP	O'N	SBF	ave.	IMP	O'N	SBF	ave.
Ranger Russet *	472	561	675	569	443	503	668	538
Rs. Burbank *	515	436	457	469	467	319	436	407
Rs. Norkotah *	341	426	327	365	312	339	319	323
Rs. Norkotah #3 *	595	426	421	481	566	358	407	444
Rs. Norkotah #8 *	443	610	588	547	421	503	581	502
Rs. Norkotah #102 *	523	532	264	440	479	436	254	390
Rs. Norkotah #112 *	646	503	363	504	610	436	363	470
Rs. Norkotah #223 *	494	600	450	515	472	523	436	477
Rs. Norkotah #278 *	465	581	436	494	436	484	428	449
Rs. Norkotah #296 *	479	407	407	431	450	339	392	394
A86-102-6 *	624	.	733	.	610	.	726	.
AC83064-1 * ¹	479	465	450	465	457	387	428	424
AC83064-6 * ²	465	368	610	481	450	319	588	452
AC89536-5 *	421	426	414	420	392	329	399	373
ATX549-1 * ⁴	515	590	225	443	494	484	217	398
ATX84706-2 *	501	581	341	474	501	561	341	468
ATX19202-3rus *	479	.	385	.	465	.	378	.
B9922-11 * ⁵	465	503	414	461	457	416	407	427
CO85026-4 *	494	426	530	483	479	358	523	453
MSB106-7 *	472	494	392	453	450	407	385	414
MSC148-8 *	421	436	363	407	407	358	334	366
MSE192-8 *	298	310	.	.	261	213	.	.
ND4093-4 *	450	319	334	368	407	242	327	325
TX1385-12 *	486	523	392	467	479	455	385	440
W1348ru *	545	600	639	595	494	484	617	532
Dark Red Norland **	494	620	370	495	472	561	363	465
A79543-4R ** ⁴	298	474	341	371	254	300	283	279
A82705-1R ** ⁵	537	687	617	614	515	620	588	574
CO86218-2 **	283	465	356	368	232	397	334	321
DT6063-1R ** ⁶	486	513	443	481	457	474	434	455
MN17922 **	457	542	.	.	443	513	.	.
ND5084-3R **	.	.	951	.	.	.	944	.
W84-75R ** ⁷	363	348	261	324	218	213	174	202
W1100R ** ⁸	363	484	276	374	319	445	261	342
Yukon Gold ***	254	552	341	382	247	503	327	359
MSG274-3 ***	428	581	312	440	348	319	225	297
NY101 *** ⁹	479	736	574	596	457	697	559	571
TX1523-1ru/y ****	399	.	298	.	385	.	290	.
A90586-11 *****	530	465	537	511	494	368	523	462
MN18747 *****	486	416	501	468	472	348	494	438
NDTX4930-5w *****	479	.	552	.	472	.	545	.
site means:	461	500	440	469	431	417	423	427

* russet; ** red; *** yellow; **** russet-skinned yellow; ***** white

¹Keystone Rs ²Silverton Rs ³Amey ⁴CalRed ⁵IdaRose ⁶Cherry Red ⁷Red Pearl ⁸Red Compagnon ⁹Keuka Gold

Nebraska Table 3b. Specific gravity and fry color at Imperial (IMP), O'Neill (O'N) and Scottsbluff (SBF).

Table Entries	Specific Gravity, (10 ⁻³)+1				Chip Color Chart			
	IMP	O'N	SBF	ave.	IMP	O'N	SBF	ave.
Ranger Russet *	75	86	85	82	3	3	2	2.7
Rs. Burbank *	71	76	84	77	3	3	3	3
Rs. Norkotah *	65	69	74	69	2	3	3	2.7
Rs. Norkotah #3 *	66	76	78	73	2.5	2.5	4	3
Rs. Norkotah #8 *	60	74	74	69	3	3	3	3
Rs. Norkotah #102 *	70	76	70	72	3	3	4	3.3
Rs. Norkotah #112 *	71	69	65	68	2.5	4	2.5	3
Rs. Norkotah #223 *	60	73	67	67	2	2	4	2.7
Rs. Norkotah #278 *	65	71	75	70	3	3	3	3
Rs. Norkotah #296 *	65	76	75	72	3	2	3.5	2.8
A86-102-6 *	79	.	89	.	3	.	2	.
AC83064-1 * ¹	68	60	82	70	2	3	1	2
AC83064-6 * ²	68	69	80	72	2.5	2.5	3	2.7
AC89536-5 *	82	86	76	81	3	3	3	3
ATX549-1 *	82	75	84	80	2.5	2.5	2	2.3
ATX84706-2rus *	79	71	78	76	2	3	2	2.3
ATX19202-3rus *	75	.	77	.	2	.	2	.
B9922-11 * ³	83	85	95	88	2	2	3	2.3
CO85026-4 *	80	78	80	79	3	3	2	2.7
MSB106-7 *	71	69	76	72	3	3.5	3	3.2
MSC148-8 *	80	82	95	86	1	1.5	1	1.2
MSE192-8 *	66	69	.	.	3	4	.	.
ND4093-4 *	74	67	75	72	2	2.75	2	2.25
TX1385-12 *	72	71	80	74	2	2.5	1	1.8
W1348ru *	77	79	84	80	3	3	1	2.3
Dark Red Norland **	60	60	73	64				
A79543-4R ** ⁴	70	69	84	74				
A82705-1R ** ⁵	66	67	71	68				
CO86218-2 **	60	71	80	70				
DT6063-1R ** ⁶	70	76	87	78				
MN17922 **	60	60	.	.				
ND5084-3R **	.	.	65	.				
W84-75R ** ⁷	60	77	92	76				
W1100R ** ⁸	60	60	75	65				
Yukon Gold ***	78	80	90	83	2	2	1.5	1.8
MSG274-3 ***	78	80	77	78	2	1.5	1	1.5
NY101 *** ⁹	66	79	77	74	1	1	3	1.7
TX1523-1ru/y ****	79	.	82	.	2	.	1	.
A90586-11 *****	78	83	89	83	3	1	2.5	2.2
MN18747 *****	66	66	65	66	1	1	1	1
NDTX4930-5w *****	79	.	85	.	1	.	1	.
site means:	71	73	78	74	2.3	2.6	2.3	2.4

* russet; ** red; *** yellow; **** russet-skinned yellow; ***** white

¹Keystone Rs ²Silverton Rs ³Amey ⁴CalRed ⁵IdaRose ⁶Cherry Red ⁷Red Pearl ⁸Red Compagnon ⁹Keuka Gold

Fry color: 1 = lightest to 5 = darkest. Color rating greater than 2 may be unacceptable for chips and greater than 3 may be unacceptable for fries.

Nebraska Table 3c. Off-shape and common scab at Imperial (IMP), O'Neill (O'N) and Scottsbluff (SBF).

Table Entries	Off-Shape				Common Scab			
	IMP	O'N	SBF	ave.	IMP	O'N	SBF	ave.
Ranger Russet *	7	0	68	25	0	0	0	0
Rs. Burbank *	51	21	79	50	0	0	0	0
Rs. Norkotah *	3	1	24	9	0	0	5	2
Rs. Norkotah #3 *	1	4	57	21	0	0	0	0
Rs. Norkotah #8 *	8	0	35	14	0	0	0	0
Rs. Norkotah #102 *	3	3	5	4	0	0	0	0
Rs. Norkotah #112 *	1	1	17	6	0	0	0	0
Rs. Norkotah #223 *	15	1	25	14	0	0	0	0
Rs. Norkotah #278 *	14	1	23	13	0	0	0	0
Rs. Norkotah #296 *	7	6	33	15	0	0	0	0
A86-102-6 *	2	.	51	.	0	.	0	.
AC83064-1 * ¹	6	7	0	4	6	0	0	2
AC83064-6 * ²	2	5	15	7	0	0	0	0
AC89536-5 *	1	3	9	4	0	0	0	0
ATX549-1 *	3	5	18	9	0	0	0	0
ATX84706-2 *	5	0	5	3	0	0	9	3
ATX19202-3rus *	1	.	25	.	0	.	0	.
B9922-11 * ³	1	4	5	3	0	0	3	1
CO85026-4 *	2	17	29	16	0	0	0	0
MSB106-7 *	5	2	1	3	0	0	11	4
MSC148-8 *	0	0	1	0	0	0	9	3
MSE192-8 *	1	2	.	.	0	0	.	.
ND4093-4 *	3	0	11	5	0	0	0	0
TX1385-12 *	5	4	33	14	0	0	0	0
W1348ru *	2	35	84	40	0	0	0	0
Dark Red Norland **	0	0	1	0	0	0	3	1
A79543-4R ** ⁴	0	0	3	1	0	0	0	0
A82705-1R ** ⁵	3	3	13	6	0	0	0	0
CO86218-2 ***	3	0	3	2	0	0	5	2
DT6063-1R ** ⁶	5	7	0	4	0	0	11	4
MN17922 **	9	0	.	.	0	0	.	.
ND5084-3R **	.	.	9	.	.	.	0	.
W84-75R ** ⁷	1	1	4	2	0	0	10	3
W1100R ** ⁸	5	0	0	2	0	0	3	1
Yukon Gold ***	0	1	0	0	0	0	38	13
MSG274-3 ***	2	1	5	3	0	0	0	0
NY101 *** ⁹	2	0	1	1	0	0	0	0
TX1523-1ru/y ****	1	.	0	.	0	.	12	.
A90586-11 *****	3	4	17	8	0	0	0	0
MN18747 *****	3	4	9	5	0	0	0	0
NDTX4960-5w *****	0	.	19	.	0	.	23	.
site means:	5	4	19	9	0	0	4	1

* russet; ** red; *** yellow; **** russet-skinned yellow; ***** white

¹Keystone Rs ²Silverton Rs ³Amey ⁴CalRed ⁵IdaRose ⁶Cherry Red ⁷Red Pearl ⁸Red Compagnon ⁹Keuka Gold

Nebraska Table 3d. Black Scurf and Vascular Discoloration at Imperial (IMP), O'Neill (O'N) and Scottsbluff (SBF).

Table Entries	Black Scurf				Hollow Heart			
	IMP	O'N	SBF	ave	IMP	O'N	SBF	ave.
Ranger Russet *	0	0	6	2	1	0	0	0
Rs. Burbank *	0	29	0	10	0	0	0	0
Rs. Norkotah *	0	0	11	4	0	0	0	0
Rs. Norkotah #3 *	0	0	0	0	0	0	0	0
Rs. Norkotah #8 *	0	34	0	11	0	0	0	0
Rs. Norkotah #102 *	0	7	0	2	0	0	4	1
Rs. Norkotah #112 *	7	4	0	4	0	0	1	0
Rs. Norkotah #223 *	6	5	0	4	0	0	0	0
Rs. Norkotah #278 *	0	0	0	0	0	0	5	2
Rs. Norkotah #296 *	0	5	0	2	0	0	0	0
A86-102-6 *	81	.	9	.	0	.	0	.
AC83064-1 * ¹	10	13	0	8	0	0	0	0
AC83064-6 * ²	0	0	0	0	0	0	0	0
AC89536-5 *	0	7	0	2	1	0	0	0
ATX549-1 *	29	15	21	22	0	0	3	1
ATX84706-2 *	11	3	0	5	0	0	0	0
ATX19202-3rus *	4	.	0	.	0	.	0	.
B9922-11 * ³	9	5	2	5	0	0	0	0
CO85026-4 *	0	9	0	3	0	0	0	0
MSB106-7 *	32	0	11	14	0	0	0	0
MSC148-8 *	0	0	9	3	0	0	0	0
MSE192-8 *	0	0	.	.	0	0	.	.
ND4093-4 *	0	0	0	0	0	0	0	0
TX1385-12 *	0	0	0	0	0	0	0	0
W1348ru *	0	14	0	5	0	0	0	0
Dark Red Norland **	0	0	0	0	0	0	0	0
A79543-4R ** ⁴	0	0	0	0	0	0	0	0
A82705-1R ** ⁵	0	54	0	18	0	0	0	0
CO86218-2 ***	0	0	0	0	0	0	0	0
DT6063-1R ** ⁶	0	0	0	0	0	0	0	0
MN17922 **	0	0	.	.	0	0	.	.
ND5084-3R **	.	.	0	.	.	.	0	.
W84-75R ** ⁷	0	0	0	0	0	0	0	0
W1100R ** ⁸	0	0	0	0	0	0	0	0
Yukon Gold ***	0	3	0	1	0	0	0	0
MSG274-3 ***	4	7	0	4	0	0	0	0
NY101 *** ⁹	5	0	0	2	0	0	0	0
TX1523-1ru/y ****	0	.	7	.	0	.	0	.
A90586-11 *****	0	1	0	0	0	0	0	0
MN18747 *****	0	0	0	0	0	0	0	0
NDTX4960-5w *****	0	.	0	.	0	.	0	.
site means:	5	6	2	4	0	0	<1	0

* russet; ** red; *** yellow; **** russet-skinned yellow; ***** white

¹Keystone Rs ²Silverton Rs ³Amey ⁴CalRed ⁵IdaRose ⁶Cherry Red ⁷Red Pearl ⁸Red Compagnon ⁹Keuka Gold

Nebraska Table 4. Maturity groupings at Scottsbluff (54 entries).

8/16 (> 50% dead):

(reds)	Dark Red Norland, W1100R
(russets)	MSB106-7, ND4093-4
(yellow)	TX1523-1ru/y

8/23 (> 50% dead):

(reds)	DT6063-1R
(russets)	R. Norkotah (RN), RNTX 102, RNTX 223, MSC148-8
(whites)	ND2676-10

8/30 (> 50% dead):

(reds)	A79543-4R, CO86218-2
(russets)	RNTX 112, RNTX 296, ATX84706-2rus
(whites)	NY103
(yellows)	Yukon Gold, NY101

9/6 (> 50% dead):

(reds)	W84-75R
(russets)	RNCO 8, RNTX 278, B9922-11
(white)	MSE018-1, WIS75-30
(yellow)	MSG274-3

9/13 (> 50% dead):

(russets)	RNCO 3, ATX549-1, ATX19202-3rus
(whites)	Atlantic, MN18747, MSB076-2, NDTX4930-5w

9/20 (> 50% dead):

(russets)	W1348rus
(whites)	A90586-11, NY87, W1431

9/20 (25% to 50% dead; 9/27 expect >50% dead)

(reds)	A82705-1R
(russets)	A86102-6, TX1385-12
(whites)	Snowden, AC89653-3, ND2470-27

9/20 (< 25% dead)

(reds)	ND5084-3R
(russets)	Rus. Burbank, Ranger Rus., AC83064-1, AC83064-6, AC89536-5, CO85026-4
(whites)	AC87340-2, MN19157, ND5822C-7
(yellows)	AC Brador

Nebraska Table 5. Additional comments on tubers from Scottsbluff.

reds

A79543-4R	small tubers
CO86218-2	look good, deep red
ND5084-3R	very big tubers, over 60% oversize ($>3\frac{1}{4}$ inch)
W84-75R	very small tubers, about half the yield

russets

AC89536-5	"hot dogs" (SB)
CO85026-4	jelly ends
ND4093-4	small tubers
TX1385-12	big tubers
W1348rus	ugly tubers (SB)

whites

ND5822C-7	25% internal necrosis
NY103 (Eva)	6% very deep pitted scab (SB)

NEW JERSEY

Melvin R. Henninger

Introduction

Trials were conducted at the Rutgers Agricultural Research & Extension Center (RAREC) in Upper Deerfield Township and The Snyder Research & Extension Farm near Pittstown. All plots were 21' long and 3' wide. Seedpieces were spaced at 9" for round types and 12" for long types.

At the RAREC location, the experiment was conducted on a Chillum silt loam with a pH of 6.8. On March 7th, Touchdown was applied for total vegetation control on the existing cover crop. On March 10th, the field was V ripped for tillage. On MARCH 29TH, 50 lb/A of N-P₂O₅-K₂O was applied broadcast and incorporated. On April 6th, the field was prepared for planting by chisel plowing, and rows were marked with a modified potato planter (covering discs removed). On April 7th, variety trials were planted into the open furrows by hand, and Admire 2F was applied as an in-furrow spray for systemic insect control with a tractor mount sprayer while covering the potatoes. On May 12th, 100 lb/A of nitrogen as 34-0-0 was side-dressed during cultivation. On May 16th, Dual Magnum + Sencor were applied broadcast, and on June 9th additional Dual Magnum + Sencor were applied broadcast after hilling. The following foliar insecticide program was utilized: June 23rd – Agrimex 0.15E @ 0.5 qt/A + Vydate L @ 2 qt/A and on Aug 1st – Spin Tor 25C @ 4 fl.oz./A. Monthly rainfall amounts were: April – 2.6"; May – 2.3"; June – 3.6"; July – 3.0"; Aug – 3.7" and Sep – 0.4". Irrigation was applied on June 13th - 1", July 12th - 1" and August 4th - 1".

The plots were harvested with a single-row mount commercial harvester modified for bagging. No attempt was made to recover any lost tubers caused by normal harvester operation. All plots were sized with a spool sizer, and inspected for defects. Specific gravities were determined by weight in air and water. Chip color was done by Mr. Steve Molnar of Wise Foods seven days after harvest.

At the Snyder Farm, the experiment was conducted on a Washington silt loam soil. The cover crop was killed with Round-Up. The field was chisel plowed, 50 lb/A of N-P₂O₅-K₂O was applied broadcast and incorporated. The rows were marked with a modified potato planter (covering discs removed) and the potatoes were planted on May 1st into open furrows by hand, and Admire 2F was applied as an

in-furrow spray for insect control with a tractor while covering the potatoes. On May 29th, 100 lb/A of nitrogen as 34-0-0 was side-dressed during cultivation. Dual and metribuzin were applied on May 4th and additional Dual and metribuzin immediately after hilling on June 21st. Plots consisted of single 36" rows 21-ft. long. The plots were harvested with a single-row commercial potato digger and pick by hand. Round types were sized with a spool sizer, the long types were sized by weight, and specific gravities were determined by weight in air and water.

In 2000, the growing conditions were excellent with cool nights and warm sunny days. Rainfall was supplemented with overhead irrigations. Ozone levels were high in June and July and some varieties were damaged. Insects and diseases were not a limiting factor to growth.

To simplify above information, trade names of some products are used. No endorsement is intended, nor is criticism implied of similar products not named.

ACKNOWLEDGMENTS

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Seed for the variety trials was provided by: Dr. Kathleen Haynes, USDA/ARS Beltsville, MD; Dr. Robert Plaisted, Cornell University; Dr. Alvin Reeves, University of Maine; Dr. Creighton Miller, Jr., Texas A&M University; and, Dr. Christian Thill, University of Minnesota.

Many people assisted in conducting these experiments. Special credit and thanks to Bill Pompper and Ed Dager, the Farm Supervisors at RAREC and the Snyder Farm, respectively, and their crews for planting, irrigating, scouting, spraying, harvesting and grading these plots. Not being on site daily their eyes are extremely valuable to me.

Also thanks to Bill Messeroll and Glen Tappen at the Vegetable Research Farm for their help in preparing the potatoes for planting.

Thanks also to Agway Seed Potato Department in Presque Isle, Maine, especially Dick Moore, who annually spend a lot of phone time and many miles on my behalf gathering small lots of seed and shipping them to New Jersey.

New Jersey Table 1. Yields, Specific Gravities, and Tuber Sizes for 24 Round White Potato Varieties, Harvested Main Season and Grown on a Sandy Loam Soil at the Rutgers Agricultural Res. & Ext. Center - Upper Deerfield, NJ - 2000(1).

Variety	Source (2)	Total Yield cwt/a	Market Yield		Spec. Grav.	% O v e r		% Culls	% Tuber Sizes (3)				
			cwt/a	% of Sup.		1 7/8	2 1/2		1	2	3	4	5
NY 112	ne	468	440	130	1.075	95	54	1	5	41	38	15	0
Kennebec	ne	499	440	130	1.065	95	57	7	5	37	51	6	0
AF1615-1	ne	412	377	112	1.069	93	36	2	7	57	36	0	0
Katahdin	ne	408	376	111	1.070	94	53	2	6	41	44	9	0
AF1775-2	ne	413	369	109	1.079	94	30	5	6	63	30	1	0
NY T 2-2	ny	381	366	108	1.080	97	56	1	3	41	49	7	0
B0766-3	ne	367	346	102	1.077	96	69	2	4	27	51	19	0
NY 103	ne	360	343	101	1.071	96	57	1	4	39	53	4	0
NY T 35-34	ny	378	341	101	1.081	91	29	1	9	62	29	0	0
Superior	ne	369	338	100	1.073	95	46	3	5	49	37	9	0
Atlantic	ne	370	333	99	1.083	91	41	1	9	50	39	2	0
NY T 37-3	ny	375	327	97	1.082	88	23	2	12	65	23	0	0
NY 115	ne	358	325	96	1.068	91	24	1	9	68	23	1	0
W1313	ne	373	324	96	1.094	88	23	1	12	65	23	0	0
W1242	ne	344	319	94	1.084	95	46	2	5	48	45	1	0
AF1775-2	me	350	312	92	1.078	95	44	6	5	51	44	0	0
NY 120	ny	319	302	89	1.083	97	64	2	3	33	52	11	0
NY T 4-2	ny	335	301	89	1.082	92	28	2	8	64	27	1	0
NY S 14-2	ny	315	296	87	1.081	96	55	2	4	41	48	7	0
NY S 32-3	ny	327	295	87	1.074	91	28	2	9	63	27	1	0
CO86218-2	ne	332	285	84	1.072	88	40	2	12	48	36	5	0
Yukon Gold	ne	291	264	78	1.076	93	50	2	7	43	46	4	0
AF1758-7	ne	279	248	73	1.056	91	33	3	9	58	33	0	0
NY 123	ny	266	235	70	1.081	94	51	6	6	42	47	5	0
CV (4)		7	9		.435								
W-D Bayes	LS	0.05	35	38	.006	2	9	4	2	9	9	7	ns

(1) Plots were planted on 4/06, and harvested on 8/08.

(2) me = Univ. of Maine, ne = NE Regional Project, ny = Cornell University.

(3) Size 1= Under 1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= Over 4".

(4) CV=Coef of Variation; W-D Bayes LSD 0.05=Waller Duncan Test For Least Significant Difference.

New Jersey Table 2. Plant and Tuber Characters, Tuber Defects, Chip Color and Overall Rating for Varieties and Seedlings Grown in Upper Deerfield, NJ 2000 (1).

Variety	PLANT			TUBER CHARACTERS							TUBER DEFECTS(2)							Over All	Chip Color	Comments																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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(1) See NE-184 rating table for plant and tuber characters, tubers defects and chip color ratings.

(2) HH = No. of Hollow Heart tubers out of 40. HN = No. of Heat Necrosis tubers out of 40 cut.

New Jersey Table 3. Yields, Specific Gravities, and Tuber Sizes for 24 Round White Potato Varieties, Harvested Main Season and Grown on a Sandy Loam Soil at the Rutgers Agricultural Res. & Ext. Center - Upper Deerfield, NJ - 2000(1).

Variety	Seed Source (2)	Total Yield cwt/a	Market Yield cwt/a	% of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
						1	7/8	2 1/2		1	2	3	4	5
B1870-3	cf	394	365	130	1.076	96	77	4	4	19	44	33	0	
B1722-5	cf	402	362	129	1.066	96	72	6	4	23	43	30	0	
B1880-6	cf	377	339	121	1.070	94	56	5	6	38	46	11	0	
B1870-17	cf	385	338	121	1.068	96	70	8	4	26	40	30	0	
B1826-1	cf	376	334	119	1.066	94	65	5	6	28	44	22	0	
AF1938-3	me	379	330	118	1.068	93	52	6	7	41	43	9	0	
Reba	ct	346	328	117	1.073	97	68	3	3	29	56	12	0	
AF 875-15	me	370	327	117	1.078	93	49	5	7	44	40	9	0	
AF1921-4	me	357	318	114	1.071	92	43	3	8	49	38	5	0	
B1806-8	cf	345	315	113	1.070	93	49	2	7	43	41	9	0	
B0766-3	cf	342	315	112	1.075	96	62	4	4	34	47	15	0	
B0564-9	cf	332	314	112	1.075	97	67	2	3	30	46	21	0	
B1322-19	cf	347	311	111	1.071	93	41	3	7	52	40	1	0	
B0564-8	cf	328	304	109	1.070	94	58	1	6	36	45	12	0	
B1709-6	cf	327	301	108	1.077	95	62	3	5	33	44	17	0	
B0178-34	cf	334	299	107	1.076	93	55	3	7	38	44	11	0	
Atlantic	cf	328	298	106	1.082	93	50	3	7	43	40	9	0	
Superior	cf	315	280	100	1.068	95	46	7	5	49	36	11	0	
B1871-1	cf	305	274	98	1.063	93	48	4	7	45	41	8	0	
B1878-7	cf	343	266	95	1.059	98	72	21	2	26	49	23	0	
B1327-6	cf	294	264	94	1.077	94	29	4	6	64	29	0	0	
B1880-4	cf	280	262	93	1.068	95	49	1	5	46	40	9	0	
Norwis	ct	257	241	86	1.063	97	60	3	3	36	54	7	0	
Andover	ct	245	198	71	1.076	84	10	3	16	74	10	0	0	
CV (4)		9	11		.326									
W-D Bayes	LSD	0.05	43		.005	2	9	3	2	8	9	10	ns	

(1) Plots were planted on 4/06, and harvested on 8/08.

(2) cf = USDA Chapman Farm, ct = Certified Seed, ny = Cornell Univ.

(3) Size 1= Under 1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= Over 4".

(4) CV=Coef of Variation; W-D Bayes LSD 0.05=Waller Duncan Test For Least Significant Difference.

New Jersey Table 4. Plant and Tuber Characters, Tuber Defects, Chip Color and Overall Rating for Varieties and Seedlings Grown in Upper Deerfield, NJ 2000 (1).

Variety	PLANT			TUBER CHARACTERS							TUBER DEFECTS(2)							Chip Color	Comments				
	A	P	p	M	S	S	C	T	S	D	A	S	G	H	S	b	H			H	N	R	All
B1870-3	6	-		1	8	8	8	8	1	9	8	9	9	9	9	9	9	0	0	yes	3.5	large app+	
B1722-5	7	-		4	7	7	7	7	3	7	7	9	9	9	9	9	9	0	3	no	4.0	large app=	
B1880-6	7	-		2	8	8	7	7	3	8	8	9	9	9	9	9	9	0	1	yes		app+ knobs	
B1870-17	7	-		4	9	7	6	6	3	8	8	9	7	9	9	9	9	1	1	yes	3.5	large app+	
B1826-1	7	-		3	7	8	8	8	2	8	7	9	9	9	9	9	9	0	0	yes	2.5	large gr	
AF1938-3	7	-		3	5	8	8	8	3	8	8	9	7	9	8	8	0	0	yes	2.5	scab app+		
Reba	7	-		7	3	8	7	7	2	8	8	9	9	9	9	9	9	12	0	yes	2.0	hh late	
AF 875-15	8	-		2	6	8	7	7	2	6	7	9	7	9	9	9	9	1	0	yes		app- knobs gc	
AF1921-4	7	-		1	8	8	7	7	2	6	8	9	7	9	9	9	9	0	0	yes		large app+ gc	
B1806-8	6	-		1	5	9	8	8	2	6	8	9	9	9	9	9	9	0	0	yes	4.0	app+	
B0766-3	7	-		3	7	8	7	7	2	8	8	9	9	9	9	9	9	0	0	yes	3.0	app+ large	
B0564-9	7	-		2	8	8	7	7	4	8	8	9	9	9	9	9	9	0	0	yes	3.0	app+ large	
B1322-19	7	-		5	6	8	7	7	5	6	6	9	9	9	9	8	8	0	6	no	5.0	hn app- small	
B0564-8	7	-		2	9	7	6	6	1	8	8	9	9	9	9	9	9	3	0	yes	3.5	SG- app+ hh	
B1709-6	7	-		4	6	7	7	7	2	5	6	9	9	9	9	9	9	3	1	ok+	3.5	large app- hh	
B0178-34	7	-		3	9	8	8	8	3	5	6	9	9	9	9	9	9	0	2	yes	4.0	SG+ app-	
Atlantic	7	-		4	7	7	6	6	2	8	8	9	9	9	9	9	9	2	9	std	4.5		
Superior	7	-		1	9	7	6	6	3	7	7	9	9	9	9	9	9	0	2	std			
B1871-1	7	-		2	9	8	8	8	2	8	8	9	9	9	9	9	9	0	1	yes	4.0	app+	
B1878-7	7	-		3	8	8	6	6	5	8	8	9	9	9	9	9	9	0	1	no		ac app+	
B1327-6	8	-		6	4	7	6	6	3	5	7	9	9	9	9	9	9	0	2	no	4.5	small	
B1880-4	7	-		2	6	9	9	9	2	8	8	9	9	9	9	9	9	0	0	ok+		app+	
Norwis	7	-		4	7	8	8	8	2	5	6	9	9	9	9	9	9	0	0	std		app-	
Andover	7	-		2	9	7	7	7	2	8	8	9	9	9	9	9	9	0	0	ok	2.0	small app+	

(1) See NE-184 rating table for plant and tuber characters, tubers defects and chip color ratings.

(2) HH = No. of Hollow Heart tubers out of 40. HN = No. of Heat Necrosis tubers out of 40 cut.

New Jersey Table 5. Yields, Specific Gravities, and Tuber Sizes for 18 Round White Potato Varieties, Harvested Late Season and Grown on a Sandy Loam Soil at the Rutgers Agricultural Res. & Ext. Center - Upper Deerfield, NJ - 2000(1).

Variety	Seed Source (2)	Total Yield cwt/a	Market Yield % of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
					1	7/8	2 1/2		1	2	3	4	5
Kennebec	ne	443	396	135	1.069	95	54	6	5	41	41	14	0
Katahdin	ne	397	361	123	1.063	93	44	2	7	49	36	7	0
Snowden	ne	380	339	115	1.082	90	28	1	10	62	24	4	0
B0766-3	ne	342	319	108	1.074	96	63	3	4	33	43	19	0
AF1938-3	me	337	302	103	1.073	91	38	3	9	53	30	8	0
B0564-9	cf	313	295	100	1.070	96	62	2	4	34	46	16	0
Superior	ne	317	294	100	1.067	94	44	2	6	50	33	11	0
Eva	ne	314	294	100	1.069	96	58	3	4	39	48	10	0
AF1935-6	me	334	291	99	1.072	90	32	3	10	58	27	5	0
Reba	ct	306	289	98	1.072	97	51	2	3	46	45	7	0
B0564-8	cf	312	289	98	1.072	93	53	0	7	40	36	17	0
AF1921-4	me	318	287	98	1.074	92	37	3	8	55	32	5	0
Atlantic	ne	319	283	96	1.081	91	30	2	9	61	27	2	0
B0178-34	cf	296	273	93	1.085	94	44	2	6	50	36	8	0
NY S 14-2	ny	288	272	92	1.073	96	50	2	4	45	46	5	0
AF 875-15	me	307	261	89	1.078	90	34	5	10	56	26	8	0
NY 115	ne	292	258	88	1.070	89	22	1	11	67	22	0	0
Yukon Gold	ne	265	243	83	1.079	93	42	1	7	50	38	4	0
CV (4)		10	7		.338								
W-D Bayes	LSD	0.05	45	50	.005	3	12	3	3	11	10	8	ns

(1) Plots were planted on 4/06, and harvested on 8/23.

(2) cf = USDA Chapman Farm, me = Univ. of Maine, ne = NE Regional Project, ny = Cornell Univ.

(3) Size 1= Under 1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= Over 4".

(4) CV=Coef of Variation; W-D Bayes LSD 0.05=Waller Duncan Test For Least Significant Difference.

New Jersey Table 6. Plant and Tuber Characters, Tuber Defects, Chip Color and Overall Rating for Varieties and Seedlings Grown in Upper Deerfield, NJ 2000 (1).

Variety	PLANT			TUBER CHARACTERS					TUBER DEFECTS(2)										Over	Comments		
	A	P	A	M	S	C	T	S	D	A	S	G	H	S	b	H	H	N			R	All
Kennebec	8	-		8	1	9	9	9	7	2	6	7	7	9	9	9	0	11	7	std	app- hs pointy knobs	
Katahdin	7	-		7	5	8	8	3	5	8		7	9	9	9	9	0	3	7	std	knobs green	
Snowden	7	-		7	9	6	5	2	8	8		8	9	9	9	9	1	1	8	std	small	
B0766-3	7	-		5	9	7	6	3	7	8		8	9	9	9	9	0	0		yes	large app+	
AF1938-3	7	-		4	8	9	8	5	6	8		9	6	9	9	9	0	1	8	ok	ac app+ gc	
B0564-9	7	-		3	9	7	7	2	8	7		9	8	9	9	9	3	0		yes	hollow heart	
Superior	7	-		2	9	6	5	4	4	6		8	9	9	9	9	2	1	8	std	hh 4bc	
Eva	6	-		5	9	8	8	2	6	8		6	9	9	9	9	0	0		yes	br wh app+	
AF1935-6	7	-		8	8	8	8	3	5	6		7	8	8	9	9	1	8	6	no	hn knobs gc	
Reba	7	-		7	7	7	7	4	7	8		9	8	9	9	9	5	1	8	yes	hh large app+	
B0564-8	7	-		2	9	7	6	1	8	8		9	9	9	9	9	0	0		yes	app+	
AF1921-4	6	-		2	8	7	6	2	8	6		7	9	9	9	9	2	1	8	ok	gc gr hh	
Atlantic	7	-		4	7	6	5	2	8	8		9	7	9	9	9	0	16	5	std	so-so yield	
B0178-34	8	-		4	7	8	7	3	5	7		9	8	9	9	9	1	1	7	yes	SG+ gc pointy green	
NY S 14-2	6	-		5	9	7	5	2	7	7		9	9	9	9	9	1	1	8	ok+	deep eyes	
AF 875-15	7	-		2	8	8	7	2	6	6		8	8	9	9	9	0	1	7	ok	knobs gc	
NY 115	7	-		2	8	8	8	2	3	7		9	9	9	9	9	0	1	7	ok+	small	
Yukon Gold	7	-		2	9	7	8	3	6	8		9	9	9	9	9	0	1	8	std		

(1) See NE-184 rating table for plant and tuber characters, tubers defects and chip color ratings.

(2) HH = No. of Hollow Heart tubers out of 40. HN = No. of Heat Necrosis tubers out of 40 cut.

New Jersey Table 7. Yields, Specific Gravities, and Tuber Sizes for 152 Round Potato Seedlings, Harvested Main Season and Grown on a Sandy Loam Soil at the Rutgers Agricultural Res. & Ext. Center - Upper Deerfield, NJ - 2000(1).

Variety	Seed Source (2)	Total Yield cwt/a	Market Yield		Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
			Source Yield cwt/a	% of Sup.		1	7/8	2 1/2		1	2	3	4	5
Atlantic	cf	365	340		1.087	93		47	1	6	47	40	7	0
Superior	cf	327	304		1.075	93		43	2	5	50	36	7	0
AF1921-9	me	327	281	92	1.071	86		28	3	12	58	28	0	0
AF2047-2	me	180	149	49	1.075	82		7	5	13	75	7	0	0
AF2055-1	me	226	174	57	1.071	77		9	6	17	68	9	0	0
AF2055-8	me	295	189	62	1.070	64		11	25	11	54	11	0	0
AF2065-3	me	173	106	35	1.065	62		15	21	18	46	15	0	0
AF2069-5	me	295	261	86	1.069	89		35	1	10	54	35	0	0
AF2078-5	me	230	177	58	1.083	77		1	0	23	76	1	0	0
AF2079-7	me	244	201	66	1.070	82		6	0	18	76	6	0	0
AF2079-9	me	174	144	47	1.066	83		6	1	17	77	6	0	0
AF2081-3	me	231	160	53	1.071	69		7	1	29	62	7	0	0
AF2082-3	me	192	142	47	1.072	74		4	0	25	70	4	0	0
AF2082-7	me	216	169	56	1.073	79		18	2	20	61	18	0	0
AF2082-10	me	256	210	69	1.081	82		16	1	16	66	16	0	0
AF2082-12	me	198	160	53	1.072	80		18	0	20	62	18	0	0
AF2082-18	me	270	246	81	1.072	91		38	1	8	53	38	0	0
AF2086-11	me	225	206	68	1.066	92		37	1	7	54	37	0	0
AF2086-18	me	204	167	55	1.073	82		12	4	14	70	12	0	0
AF2115-1	me	318	283	93	1.071	89		21	1	10	68	21	0	0
AF2135-1	me	411	378	124	1.083	92		63	4	4	29	63	0	0
AO87277-6	or	321	266	87	1.081	83		22	11	7	61	22	0	0
ATX85404-8w	tx	365	335	110	1.072	92		38	2	6	54	38	0	0
Adora	ct	297	232	76	1.067	78		22	9	13	56	22	0	0
B0599-1	cf	342	250	82	1.081	73		34	18	9	39	34	0	0
B0601-9	cf	266	162	53	1.074	61		6	24	14	55	6	0	0
B0607-2	cf	337	295	97	1.069	87		38	2	10	49	38	0	0

New Jersey Table 7. Continued

Variety	Seed Source (2)	Total Yield cwt/a	Market Yield % of Sup.	Spec. Grav.	% O v e r		% Culls	% Tuber Sizes (3)				
					1	7/8 2 1/2		1	2	3	4	5
B0607-4	cf	388	358	118	1.072	92	41	2	5	51	41	0
B0607-5	cf	294	239	79	1.068	81	27	8	11	54	27	0
B0607-12	cf	371	319	105	1.073	86	32	5	9	54	32	0
B0607-17	cf	327	257	85	1.080	79	9	0	21	70	9	0
B0607-18	cf	277	233	77	1.079	84	43	7	9	42	43	0
B0607-33	cf	208	180	59	1.072	86	44	2	12	43	28	15
B0718-3	cf	230	200	66	1.067	87	17	4	10	70	17	0
B0767-2	cf	95	63	21	1.068	66	0	14	20	66	0	0
B1316-5	cf	252	233	77	1.090	92	50	3	4	42	46	4
B1598-4	cf	252	230	76	1.075	91	48	1	7	43	48	0
B1624-22	cf	247	227	75	1.065	92	30	0	8	62	30	0
B1783-11	cf	221	183	60	1.084	83	11	0	17	72	11	0
B1783-24	cf	269	220	72	1.076	82	23	4	14	59	23	0
B1785-6	cf	225	193	63	1.068	86	42	5	9	44	42	0
B1786-14	cf	220	196	65	1.071	89	30	1	10	59	28	2
B1787-18	cf	269	250	82	1.073	93	46	3	5	47	46	0
B1856-10	cf	269	223	73	1.086	83	18	0	17	65	18	0
B1876-10	cf	266	250	82	1.063	94	53	2	4	41	53	0
B1884-9	cf	315	298	98	1.082	95	55	2	4	39	41	14
B1902-4	cf	145	121	40	1.079	84	32	2	14	52	32	0
B1912-7	cf	357	344	113	1.076	96	71	0	4	25	37	34
B1915-14	cf	208	149	49	1.077	71	29	20	9	43	29	0
B1919-9	cf	433	400	131	1.072	92	27	0	7	65	27	0
B1921-10	cf	278	234	77	1.074	84	13	1	14	71	13	0
B1922-3	cf	322	240	79	1.084	75	4	4	22	71	4	0
B1924-1	cf	182	150	49	1.072	83	23	1	16	60	23	0
B1924-6	cf	352	313	103	1.075	89	43	3	8	46	43	0
B1924-10	cf	339	295	97	1.071	87	61	7	6	26	53	8
B1927-14	cf	381	326	107	1.065	86	61	12	3	24	47	14
B1928-3	cf	309	293	96	1.070	95	65	1	4	30	49	16

New Jersey Table 7. Continued

Variety	Seed Source (2)	Total Yield cwt/a	Market Yield % of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
					1	7/8	2 1/2		1	2	3	4	5
B1928-4	cf	328	277	91	1.074	84	20	4	12	64	20	0	0
B1928-5	cf	312	290	96	1.073	93	57	2	5	36	54	4	0
B1944-2	cf	338	291	96	1.078	86	29	3	11	57	29	0	0
B1946-3	cf	231	171	56	1.070	74	4	2	24	71	4	0	0
B1962-3	cf	267	237	78	1.077	89	44	0	11	45	44	0	0
B1964-4	cf	266	239	78	1.079	90	39	1	10	51	39	0	0
MN19157	mn	282	257	85	1.080	91	34	0	9	57	34	0	0
MN19315	mn	232	95	31	1.087	41	0	4	55	41	0	0	0
MN19350	mn	321	292	96	1.087	91	27	3	6	64	27	0	0
NDTX4930-5W tx	tx	389	362	119	1.076	93	49	3	4	44	49	0	0
NY T 3-9	ny	331	301	99	1.074	91	53	3	6	38	48	4	0
NY T 20-15	ny	360	313	103	1.076	87	42	6	7	45	42	0	0
NY T 27-21	ny	499	450	148	1.075	90	54	4	6	36	47	8	0
NY U 22-6	ny	291	215	71	1.077	74	6	0	26	68	6	0	0
NY U 47-2	ny	324	290	96	1.088	90	36	2	8	54	36	0	0
NY U 47-12	ny	502	465	153	1.077	93	48	1	6	45	48	0	0
NY U 47-21	ny	398	379	125	1.083	95	49	0	5	46	41	8	0
NY U 62-2	ny	380	312	103	1.072	82	26	1	17	56	26	0	0
NY U 62-4	ny	302	234	77	1.068	77	6	2	21	71	6	0	0
NY U106-26	ny	246	205	67	1.067	83	13	4	13	70	13	0	0
NY U106-37	ny	254	235	77	1.082	92	22	4	4	70	22	0	0
NY U107-16	ny	308	269	88	1.074	87	30	2	11	57	30	0	0
NY U109-6	ny	362	325	107	1.074	90	31	1	9	59	31	0	0
NY U124-14	ny	320	292	96	1.072	91	28	5	3	63	28	0	0
NY U125-8	ny	326	301	99	1.072	92	51	2	5	42	38	12	0
NY U125-43	ny	391	380	125	1.073	97	65	1	2	32	43	22	0
NY U126-14	ny	237	199	66	1.078	84	31	0	16	52	31	0	0
NY U127-7	ny	276	233	77	1.082	84	19	0	16	66	19	0	0
NY U128-4	ny	254	178	58	1.077	70	0	1	30	70	0	0	0
NY U128-8	ny	400	358	118	1.080	90	63	4	7	27	31	32	0

New Jersey Table 7. Continued

Variety	Seed Source (2)	Total Yield cwt/a	Market Yield		Spec. Grav.	% O v e r			% Culls	% Tuber			Sizes (3)		
			cwt/a	% of Sup.		1	7/8	2		1/2	1	2	3	4	5
W95-6498-5	me	321	248	82	1.077	77	8	1	22	69	8	0	0		
W95-6527-1	me	292	249	82	1.082	85	11	0	15	74	11	0	0		
W95-6553-1	me	351	307	101	1.075	87	32	2	11	55	32	0	0		
W96-584-1	me	349	313	103	1.079	90	28	0	10	62	28	0	0		
W96-40006-1	me	369	318	105	1.085	86	21	0	14	65	21	0	0		
W96-40022-5	me	301	216	71	1.077	72	18	7	21	54	18	0	0		
Wares Pride	me	386	327	108	1.066	85	18	4	11	66	18	0	0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Red Skinned Seedlings															
B0811-4	cf	157	102	33	1.088	65	5	2	33	59	5	0	0		
B1492-12	cf	253	165	54	1.071	65	11	11	24	54	11	0	0		
B1497-33	cf	363	305	100	1.080	84	27	6	10	57	27	0	0		
B1521-2	cf	316	280	92	1.074	89	31	0	11	58	25	6	0		
B1523-4	cf	439	406	134	1.073	92	55	2	5	38	44	11	0		
B1758-3	cf	315	274	90	1.072	87	28	6	7	59	28	0	0		
B1758-4	cf	404	377	124	1.064	93	50	1	6	44	45	5	0		
B1763-4	cf	222	196	65	1.073	88	27	2	9	61	27	0	0		
B1768-10	cf	311	263	86	1.082	84	22	4	12	62	22	0	0		
B1768-20	cf	318	274	90	1.067	86	14	0	14	73	14	0	0		
B1816-5	cf	239	197	65	1.073	83	11	1	17	72	11	0	0		
B1947-6	cf	248	230	76	1.075	92	57	2	6	35	45	12	0		
B1950-8	cf	218	167	55	1.072	77	13	8	16	64	13	0	0		
B1951-5	cf	290	205	68	1.077	71	15	12	17	56	15	0	0		
B1952-2	cf	276	259	85	1.088	94	40	1	6	54	40	0	0		

New Jersey Table 7. Continued

Variety	Seed Source (2)	Total Yield cwt/a	Market Yield % of Sup. cwt/a	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
					1	7/8	2 1/2		1	2	3	4	5
B1952-4	cf	279	252	1.087	90	25	0	0	10	66	25	0	0
BD113-3	cf	47	0	1.091	0	0	0	0	100	0	0	0	0
Chieftain	cf	402	362	1.062	90	58	6	6	4	32	58	0	0
MN17922	mn	335	295	1.054	88	59	4	4	8	29	51	8	0
MN19055	mn	348	304	1.069	87	38	2	2	11	49	38	0	0
MN19298	mn	392	349	1.065	89	47	5	5	6	42	34	13	0
MN19329	mn	355	267	1.060	75	31	11	11	13	44	29	2	0
NDTX8731-1R	tx	353	334	1.054	95	55	2	2	4	40	50	5	0
Norland	cf	243	210	1.083	86	20	5	5	9	66	20	0	0
Dark Red													
Norland	ne	311	270	1.058	87	19	3	3	10	68	19	0	0
Super Red													
Norland	cf	180	129	1.048	71	28	16	16	13	44	28	0	0
NY T 17-2	ny	301	239	1.069	79	5	2	2	19	74	5	0	0
NY U 71-5	ny	267	248	1.062	93	60	4	4	3	32	41	20	0
NY U 71-6	ny	375	355	1.075	95	64	2	2	3	31	50	14	0
NY U 72-4	ny	270	237	1.064	88	39	6	6	7	48	39	0	0
Redsen	cf	210	169	1.063	81	14	2	2	17	67	12	2	0
- - - - - Russetted Skinned Seedlings - - - - -													
A84095-1	ne	346	295	1.085	85	25	5	5	9	60	25	0	0
AF2059-1	me	117	78	1.068	67	2	7	7	27	64	2	0	0
AF2059-16	me	214	182	1.054	85	8	3	3	13	76	8	0	0
AF2059-6	me	171	104	1.062	61	4	4	4	35	57	4	0	0
AF2096-1	me	208	168	1.071	81	24	10	10	10	57	24	0	0

New Jersey Table 7. Continued

Variety	Seed Source (2)	Total Yield cwt/a	Market Yield cwt/a	% of Sup.	Spec. Grav.	% O v e r		% Culls	% Tuber Sizes (3)				
						4 oz	8 Oz		1	2	3	4	5
AF2129-1	me	350	293	96	1.067	84	58	12	4	26	58	0	0
AO87277-6	or	325	259	85	1.084	80	17	13	7	63	17	0	0
ATX84706-2Ru	tx	393	339	112	1.073	86	70	13	1	16	48	23	0
ATX9202-3Ru	tx	380	291	96	1.083	77	13	14	9	63	13	0	0
B1933-10	cf	213	172	57	1.073	81	11	13	6	70	11	0	0
B1933-11	cf	269	215	71	1.078	80	24	10	10	56	19	5	0
B1933-3	cf	263	173	57	1.082	66	4	10	24	62	4	0	0
B1934-13	cf	301	234	77	1.082	78	17	11	11	60	17	0	0
B9922-11	cf	261	228	75	1.068	88	16	3	9	72	16	0	0
MN18153	mn	286	252	83	1.076	88	31	5	7	57	31	0	0
MN18710	mn	348	261	86	1.076	75	27	15	10	48	27	0	0
MN18747	mn	266	249	82	1.066	94	31	4	2	62	31	0	0
MN19484	mn	346	302	99	1.088	87	29	1	11	59	29	0	0
Russet													
Norkotah	ne	306	225	74	1.077	74	7	4	22	67	7	0	0
Russet													
Norkotah 3	ne	347	274	90	1.077	79	14	11	10	65	14	0	0
Russet													
Norkotah 8	ne	367	319	105	1.083	87	42	4	9	44	42	0	0
TXA549-1Ru	tx	398	365	120	1.082	92	47	5	4	45	47	0	0
TXNS 102	tx	322	268	88	1.080	83	19	8	9	65	19	0	0
TXNS 112	tx	344	259	85	1.075	75	16	15	9	59	16	0	0
TXNS 223	tx	369	258	85	1.072	70	3	15	15	67	3	0	0
TXNS 278	tx	364	293	96	1.076	81	20	14	5	60	20	0	0
TXNS 296	tx	369	290	95	1.075	78	19	9	13	60	19	0	0

(1) Plots were planted on 4/06, and harvested on 8/11.

(2) cf = USDA Chapman Farm, me = Univ. of Maine, mn = Univ. of Minnesota, ne = NE Regional Proj., ny = Cornell Univ. and tx = Texas A&M.

(3) Size 1= Under 1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= Over 4".

(4) Size 1= Under 4 oz., S2= 4 TO 8 oz., S3= 8 to 12 oz., S4= 12 to 16 oz., S5= Over 16 oz.

New Jersey Table 8. Plant and Tuber Characters, Tuber Defects, Chip Color and Overall Rating for Varieties and Seedlings Grown in Upper Deerfield, NJ 2000 (1).

Variety	PLANT			TUBER CHARACTERS					TUBER DEFECTS(2)										Over All	Comments
	A	P	M	S	C	T	S	D	A	S	G	H	S	b	H	N	R			
Atlantic Superior	7	-	6	3	7	6	2	8	8	9	9	9	9	9	1	30	5	std		
	6	-	3	8	8	6	3	7	7	9	9	9	9	9	0	4	8	std		
AF1921-9	7	-	1	8	8	8	2	7	6	9	9	9	9	9	0	0		ok	so-so	
AF2047-2	7	-	1	8	8	9	4	6	6	9	7	9	6	0	0			no	small app-	
AF2055-1	6	-	1	7	7	6	7	6	5	9	9	9	9	0	1	8		no	small app-	
AF2055-8	6	-	2	6	7	7	7	6	5	5	9	5	9	0	0			no	hs knobs pointy	
AF2065-3	5	-	1	6	8	7	6	6	6	6	7	5	9	0	0			no	hs gr app-	
AF2069-5	7	-	2	7	8	8	6	6	6	9	9	9	9	9	0	0		no	small pointy	
AF2078-5	6	-	1	8	7	6	3	6	7	9	9	6	9	0	0			no	small heat sprouts	
AF2079-7	6	-	1	3	8	7	3	7	7	9	9	9	9	0	0			no	small app+	
AF2079-9	5	5	1	8	8	7	2	8	7	9	9	9	9	0	0			no	small	
AF2081-3	6	-	1	9	7	8	3	5	7	9	9	9	7	0	1	8		no	small	
AF2082-3	7	-	2	6	7	6	2	6	6	9	9	9	9	9	0	0		no	small	
AF2082-7	6	-	1	9	8	8	2	7	7	9	7	9	9	0	0			no	gc small	
AF2082-10	7	-	2	8	7	6	2	6	7	9	9	9	9	0	3	6		no	hn small	
AF2082-12	5	-	4	8	7	8	3	7	7	9	9	9	9	0	0			no	small	
AF2082-18	7	-	4	4	7	6	2	8	7	9	9	9	9	0	4	7		no	heat necrosis	
AF2086-11	6	-	5	8	8	8	5	6	6	9	9	9	9	9	0	1	8	no	neat eyebrow	
AF2086-18	6	-	1	8	8	8	5	5	6	9	9	9	9	0	2	8		no	app-	
AF2115-1	7	-	2	6	8	8	2	6	7	9	9	9	9	0	0			ok	so-so	
AF2135-1	7	-	8	6	8	7	3	5	6	6	9	5	9	0	0			no	hs knobs app-	
AO87277-6	7	-	8	5	5	3	8	6	8	7	9	9	9	9	0	0		ok+	app+ knobs pionty	
ATX85404-8w	8	-	5	4	8	8	2	8	8	7	9	9	9	9	0	0		yes	knobs app+	
Adora	6	-	2	7	8	8	6	5	6	9	9	9	6	0	1	8		no	app-	
B0599-1	7	-	5	9	8	7	5	6	3	3	3	2	9	0	4	8		no	hn app- knobs hs	
B0601-9	7	-	5	9	8	8	8	3	3	4	4	2	9	0	1	7		no	knobs green pt app-	
B0607-2	7	-	4	9	8	8	5	5	7	9	9	2	9	0	0			ok	red eye late	

New Jersey Table 8. Continued

Variety	PLANT			TUBER CHARACTERS							TUBER DEFECTS(2)										Comments
	A	P	M	S	C	T	S	D	A	S	G	H	S	b	H	H	N	R	All	Over	
B0607-4	7	-	6	7	7	6	5	6	6	9	9	4	7	0	2	8	ok+	pointy			
B0607-5	7	-	5	2	8	8	2	7	7	6	9	8	9	0	0	0	no	small			
B0607-12	7	-	3	4	8	7	3	7	6	7	6	6	9	1	1	8	no	gc hs green			
B0607-17	7	-	3	2	8	8	2	7	6	9	9	6	9	0	0	0	no	pale red small hs			
B0607-18	7	-	8	1	8	8	2	5	6	9	9	9	9	0	1	8	no				
B0607-33	6	-	1	6	8	7	2	7	6	9	9	9	9	0	0	0	no				
B0718-3	7	-	8	2	8	8	2	4	6	9	9	7	9	0	0	0	no	flat			
B0767-2	7	-	9	5	5	2	7	5	4	9	9	7	9	0	4	5	no	app-			
B1316-5	5	-	6	2	8	9	5	5	6	9	9	9	9	0	0	0	ok-	flat vari			
B1598-4	6	-	2	8	7	7	3	7	6	9	9	9	9	0	0	0	no				
B1624-22	6	-	1	8	7	7	4	7	6	9	9	9	9	0	1	7	no	small			
B1783-11	6	-	1	8	8	7	3	5	6	9	9	9	9	0	0	0	no	small			
B1783-24	6	-	2	8	8	8	3	7	7	9	9	9	7	0	1	7	no	small			
B1785-6	6	-	5	5	8	8	2	7	6	9	9	9	9	0	0	0	no	app-			
B1786-14	5	-	1	7	8	7	2	6	7	9	9	9	9	4	0	0	no	small			
B1787-18	7	-	1	8	8	7	5	6	6	9	9	9	9	0	0	0	no	irreg shape			
B1856-10	7	-	7	2	8	7	3	6	6	9	9	9	9	0	5	5	no	heat necrosis			
B1876-10	6	-	1	6	8	8	2	8	8	8	9	9	9	0	0	0	ok				
B1884-9	7	-	3	7	8	8	2	8	8	9	9	9	9	0	0	0	yes	app+			
B1902-4	6	-	6	4	9	8	2	7	7	9	9	9	9	1	0	0	no	small			
B1912-7	7	-	6	2	7	6	3	6	8	9	9	9	9	0	8	5	no	heat necrosis			
B1915-14	6	-	1	8	8	8	2	5	5	7	5	9	9	0	1	8	no	gc app-			
B1919-9	8	-	5	3	6	5	7	5	7	9	9	9	9	0	0	0	yes	small app-			
B1921-10	5	-	2	7	8	8	2	7	8	9	9	9	9	0	0	0	no	small			
B1922-3	8	-	1	6	8	7	3	7	7	9	9	7	9	2	0	0	no	small hs			
B1924-1	6	-	2	5	9	8	2	7	7	9	9	9	9	0	0	0	no	small			
B1924-6	7	-	2	5	7	7	2	7	8	9	7	9	9	0	0	0	ok+	gc app+			
B1924-10	6	-	4	4	8	7	7	7	7	9	5	9	9	0	0	0	ok	gc pointy			
B1927-14	7	-	5	5	8	8	2	8	8	9	9	9	9	0	0	0	no	air cracks			
B1928-3	7	-	5	4	8	7	2	8	7	9	7	9	9	0	1	8	yes	app+ gc			

New Jersey Table 8. Continued

Variety	PLANT			TUBER CHARACTERS								TUBER DEFECTS (2)								Over All	Comments
	A P p			TUBER								DEFECTS (2)									
	A	P	p	M	S	S	C	T	S	D	A	S	G	H	S	b	H	N	R			H
B1928-4	6	-		2	6		8	8	8	3	5	7	9	9	9	8	0	0		ok	small
B1928-5	7	-		2	6		8	7	3	6	8		9	8	9	9	0	6	5	no	hn app+
B1944-2	7	-		3	6		8	8	8	6	7		9	9	9	9	0	0		ok+	long white
B1946-3	7	-		2	8		8	8	4	6	6		9	9	9	9	0	0		no	small
B1962-3	7	-		1	6		7	7	4	5	7		9	9	9	7	0	0		no	scab
B1964-4	7	-		1	8		8	8	3	6	6		9	9	9	9	1	1	7	no	so-so
MN 19157	7	-		4	6		8	8	2	8	8		9	9	9	9	0	2	7	ok+	app+ small
MN 19315	7	-		2	9		8	8	2	7	7		9	9	9	9	0	0		no	small
MN 19350	6	-		5	9		8	8	6	6	6		9	9	7	9	0	0		no	gc pointy rot
NDTX4930-5W	7	-		7	6		8	8	2	5	7		9	9	9	9	0	0		yes	
NY T 3-9	7	-		6	5		8	7	3	5	7		9	9	9	6	0	0		no	scab
NY T 20-15	7	-		7	7		8	7	2	7	8		9	9	9	9	0	0		ok+	small
NY T 27-21	8	-		7	4		8	8	2	7	7		9	8	9	8	0	0		yes	late
NY U 22-6	6	-		3	7		8	7	2	7	7		9	9	9	9	0	0		no	small
NY U 47-2	7	-		7	6		8	7	4	6	6		8	9	9	7	0	0		no	small app-
NY U 47-12	7	-		9	1		8	7	2	7	8		8	9	9	9	0	0		yes	late
NY U 47-21	7	-		8	8		8	8	2	8	8		9	9	9	9	0	0		yes	app+
NY U 62-2	7	-		4	6		7	8	2	8	7		9	9	9	9	0	0		yes	small
NY U 62-4	6	-		3	8		7	7	2	7	7		9	9	9	9	0	0		no	small
NY U106-26	6	-		3	6		8	8	2	7	7		9	9	9	6	0	0		no	scab small
NY U106-37	7	-		5	3		8	7	2	8	7		9	9	9	9	0	0		no	small
NY U107-16	6	-		1	6		8	8	3	7	7		9	9	9	9	0	0		no	small
NY U109-6	7	-		1	7		9	8	2	8	8		9	9	9	9	0	2	7	yes	small app+
NY U124-14	7	-		1	8		8	7	5	7	6		9	9	9	9	0	0		no	small
NY U125-8	7	-		3	3		8	8	2	8	7		9	9	9	9	0	0		yes	large
NY U125-43	7	-		6	3		8	7	2	8	7		9	9	9	9	0	10	5	no	hn large
NY U126-14	6	-		6	7		8	6	3	6	6		9	9	9	7	0	1	8	no	app- small
NY U127-7	8	-		5	7		8	8	2	8	8		9	9	9	9	0	0		ok	app+ small
NY U128-4	7	-		1	5		8	8	2	8	7		9	9	9	9	0	0		no	small
NY U128-8	7	-		8	6		8	8	2	8	7		9	9	9	7	0	0		yes	large scab

New Jersey Table 8. Continued

Variety	PLANT		TUBER CHARACTERS							TUBER DEFECTS (2)								Comments			
	A	P	M	S	C			T	S	D	A	S	G	H	S	H	H		N	R	Over
			t	s	l	x	h						p	C	S	b					All
W95-6498-5	7	-	5	5	7	6	2	8	7			9	9	9	9	0	0		0	no	2brown center small
W95-6527-1	7	-	5	7	8	7	2	7	7			9	9	9	9	0	0		0	no	small app-
W95-6553-1	6	-	3	6	7	7	2	7	6			9	9	9	9	0	1	8	ok+	small	
W96-584-1	8	-	2	8	8	7	6	6	7			9	9	9	9	0	0		0	yes	app+
W96-40006-1	7	-	7	4	7	6	4	7	7			9	9	9	9	0	3	8	ok	small hn	no bicolor
W96-40022-5	7	-	1	7	6	7	2	5	5			9	9	9	9	0	5	7	no	hn	ac green
Ware's Pride	7	-	4	5	2	7	2	7	7			9	9	3	9	0	0		no	hs	small
- - - - - Red Skinned Seedlings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B0811-4	6	-	3	8	2	8	2	8	7			9	9	9	9	0	0		no	small ok	red color
B1492-12	6	-	5	5	2	6	3	5	5			4	9	3	9	0	0		no	small	hs knobs
B1497-33	7	-	4	7	7	7	3	7	6			6	9	4	9	1	2	8	no	hs	knobs
B1521-2	8	-	7	5	2	6	2	7	7			9	9	9	9	0	0		yes	red	net
B1523-4	8	-	6	5	2	6	2	7	7			9	9	9	9	0	0		yes	air	cracks
B1758-3	7	-	3	6	2	7	2	7	6			9	7	9	9	0	0		ok	gc	app-
B1758-4	6	-	6	5	2	6	3	7	6			9	9	9	9	1	2	8	yes	app-	
B1763-4	6	-	1	5	1	6	3	7	6			9	9	9	9	0	0		no	dark	net purple
B1768-10	7	-	2	7	2	6	3	6	6			8	9	9	9	0	0		ok	pale	red vari
B1768-20	7	-	2	5	2	7	2	7	7			9	9	9	9	0	0		ok	pale	red app+
B1816-5	6	-	1	7	1	8	5	7	7			9	9	9	9	0	0		yes	nice	purple app+
B1947-6	7	-	1	7	2	7	2	6	8			9	7	9	9	0	1	8	ok	ok	purple
B1950-8	5	-	2	3	1	8	3	6	7			6	9	6	9	0	0		no	knobs	hs sencor
B1951-5	7	-	3	5	1	7	7	7	6			7	9	9	9	0	0		ok	dark	purple
B1952-2	6	-	6	6	1	8	2	6	7			9	9	7	9	0	0		yes	nice	purple

New Jersey Table 8. Continued

Variety	PLANT			TUBER CHARACTERS					TUBER DEFECTS (2)								Comments	
	A	P	M	S	T			S	G	H	S	b	H	N	R	Over		
					C	l	x											D	A	H	N	R
			t	S	1	2	8	3	5	7	9	9	9	0	0		yes	ok
B1952-4	7	-	3	8	2	8	3	5	7		9	9	9	0	0		yes	ok
BD113-3	6	-	2											-	-		no	small very yf
Chieftain	7	-	7	2	2	8	3	7	6		8	9	8	9	0	4	8	std
MN 17922	7	-	7	3	2	7	3	7	7		9	9	9	9	0	0	ok+	good red late
MN 19055	8	-	4	7	2	7	2	8	8		8	9	9	9	0	0	yes	big red
MN 19298	7	-	5	5	2	6	2	7	7		9	9	7	9	0	0	ok	pale red yf hs
MN 19329		-	5	6	2	7	2	7	5		5	9	6	9	0	0	no	hs knobs app-
NDTX8731-1R	7	-	5	8	2	6	2	8	8		9	7	9	9	0	0	yes	dark red app+ gc
Norland	6	-	1	6	2	8	3	6	7		9	9	9	9	0	1	8	std
Dark Red																		
Norland	6	-	1	8	2	8	3	7	7		8	9	9	9	0	2	7	yes
																	app+	
Super Red																		
Norland	5	-	1	3	2	8	2	7	5		8	6	9	9	0	1	7	no
NY T 17-2	6	-	1	7	2	8	7	7	6		9	9	9	9	0	2	8	ok+
NY U 71-5	6	-	3	5	2	8	2	6	6		9	7	9	9	0	1	8	ok
NY U 71-6	8	-	7	3	2	7	2	7	7		7	7	9	9	0	2	7	ok+
NY U 72-4	7	-	5	7	2	6	3	7	6		9	9	9	9	0	0	ok	too netted
Redsen	6	-	1	7	2	8	2	8	7		9	7	9	9	0	0	ok	gc
- - - - Russetted Skinned Seedlings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A84095-1	7	-	7	5	5	4	8	6	7		7	9	8	9	0	1	8	ok
AF2059-1	6	-	1	8	6	5	4	7	6		9	9	9	9	0	0	no	heat necrosis
AF2059-6	5	-	1	7	8	8	6	5	6		7	9	9	9	0	0	no	small knobs
AF2059-16	5	-	1	9	8	7	7	7	7		9	7	9	9	1	0	ok	knobs gr
AF2096-1	6	-	1	5	7	7	7	6	5		7	9	9	9	0	0	no	knobs app-

New Jersey Table 8. Continued

Variety	PLANT			TUBER CHARACTERS					TUBER DEFECTS(2)										Over	Comments			
	A	P	p	M	S	S	C	T	S	D	A	S	G	H	S	b	H	H			N	R	All
AF2129-1	7	-		1	8		5	3	8	6	7	7	9	6	9	0	3	7	ok+	knobs heat necrosis			
AO87277-6	6	-		7	5		5	2	8	5	5	6	7	9	9	0	1	8	no	app- knobs gc			
ATX84706-2Ru	7	-		7	4		7	6	6	6	6	8	9	9	9	4	0	yes	hh app-				
ATX9202-3Ru	8	-		8	5		5	3	8	7	7	7	9	9	9	0	3	6	ok+	hn knobs			
B1933-3	7	-		2	7		7	6	6	5	5	9	9	9	9	0	0	no	app-				
B1933-10	6	-		1	8		5	3	5	5	6	6	7	9	9	0	0	no	app- knobs				
B1933-11	7	-		1	3		5	4	8	7	3	3	9	9	9	0	0	no	app- knobs				
B1934-13	8	-		1	8		7	7	5	5	5	9	9	9	9	0	0	no	heat necrosis				
B922-11	7	-		3	8		5	4	5	5	7	9	9	9	9	0	0	no	app-				
MN 18153	7	-		6	6		5	3	8	6	6	9	9	9	9	0	2	8	ok	so-so			
MN 18710	8	-		7	6		7	7	5	6	3	5	7	9	9	0	1	8	no	app- knobs gc			
MN 18747	6	-		3	6		8	8	5	6	6	6	9	9	9	0	0	no	app- knobs				
MN 19484	8	-		9	3		8	7	5	6	6	7	9	8	9	0	3	8	no	app- late knobs			
Russet	7	-		3	7		5	3	7	6	7	8	9	9	9	0	0	std	small				
Norkotah																							
Russet																							
Norkotah 3	7	-		7	5		5	3	8	7	6	9	9	9	9	0	1	8	no	app- small			
Russet																							
Norkotah 8	7	-		3	5		5	4	7	8	8	8	9	9	9	0	1	7	yes	nice tubers			
TXA549-1Ru	8	-		7	3		7	4	8	5	7	8	7	9	9	3	1	8	yes	hh gc			
TXNS 102	7	-		9	3		5	3	8	6	6	9	9	9	9	0	0	ok+	app- no defects				
TXNS 112	7	-		8	5		5	2	8	6	7	8	9	9	9	0	0	ok+	pointy some nice				
TXNS 223	8	-		7	4		5	3	9	6	7	8	8	9	9	0	0	no	so-so				
TXNS 278	8	-		8	5		5	2	8	6	5	6	7	9	9	0	2	6	no	hn app- knobs gc			
TXNS 296	7	-		8	4		5	3	9	6	7	9	9	9	9	2	0	yes	app+ deep eyes				

(1) See NE-184 rating table for plant and tuber characters, tubers defects and chip color ratings.
 (2) HH = No. of Hollow Heart tubers out of 10. HN = No. of Heat Necrosis tubers out of 10 cut.

New Jersey Table 9. Yields, Specific Gravities, and Tuber Sizes for 18 Round Specialty Potato Varieties, Harvested Late Season and Grown on a Silt Loam Soil at the Snyder Agricultural Research & Extension Farm near Pittstown, NJ-2000 (1)

Variety	Seed Source (2)	Total Yield cwt/a	Market Yield		Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)					
			cwt/a	% of Sup.		1	7/8	2		1 1/2	1	2	3	4	5
B1523-4	cf	619	563	124	1.077	96	78	6	4	18	33	35	9		
CO86218-2	ne	577	515	113	1.071	94	55	5	6	39	46	9	0		
Chieftain	cf	523	469	103	1.067	96	72	7	4	23	39	32	1		
B1763-4	cf	476	433	95	1.078	96	71	5	4	25	49	22	1		
B1758-4	cf	481	410	90	1.068	93	59	9	7	35	46	13	0		
NDTX8731-1R	tx	438	410	90	1.059	97	76	4	3	21	40	36	1		
MN17922	mn	468	401	88	1.062	96	79	11	4	17	39	35	5		
B1758-3	cf	450	381	84	1.066	93	55	8	7	38	44	11	0		
B1492-12	cf	476	371	82	1.073	85	41	8	15	44	35	6	0		
B1521-2	cf	434	353	78	1.072	88	50	8	12	38	36	14	0		
Norland	cf	380	334	73	1.063	95	67	8	5	28	52	15	1		
Norland DR	ne	365	332	73	1.062	94	46	3	6	47	39	7	0		
Redsen	cf	348	315	69	1.066	94	59	3	6	34	41	19	0		
Norland SR	cf	327	301	66	1.054	97	77	5	3	21	52	24	0		
B1497-33	cf	474	300	66	1.080	88	41	28	12	47	30	11	0		
NY T 17-2	ny	374	289	63	1.069	85	20	9	15	64	20	0	0		
Yukon Gold	ct	304	289	63	1.080	98	79	4	2	20	47	31	1		
B0811-4	cf	126	95	21	1.085	74	13	1	26	62	13	0	0		
CV (4)		13	14		.246										
W-D Bayes		74	67		.003	4	9	5	4	8	9	8	2		
LSD 0.05															

(1) Plots were planted on 5/01, and harvested on 9/18.

(2) cf = USDA Chapman Farm, me = Univ. of Maine, mn = Univ. of Minnesota, ne = NE Regional Proj., ny = Cornell Univ. and tx = Texas A&M.

(3) Size 1= Under 1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= Over 4".

(4) CV=Coef of Variation; W-D Bayes LSD 0.05=Waller Duncan Test For Least Significant Difference.

New Jersey Table 10. Plant and Tuber Characters, Tuber Defects, and Overall Rating for Varieties and Seedlings Grown near Pittstown, NJ 2000 (1).

Variety	PLANT			TUBER CHARACTERS								TUBER DEFECTS (2)										Comments	
	A	P	p	M	S	S	C	T	S	D	A	S	G	H	S	b	H	H	N	R	All		Over
B1523-4	7	8		5	9	2	2	6	2	4	7	7	9	9	9	9	0	0				yes	net c5 rhz6
CO86218-2	8	9		6	9	2	2	6	3	5	5	7	7	9	9	9	0	0				yes	tough stems net gc
Chieftain	7	8		4	9	2	2	8	6	5	6	7	7	7	9	9	1	2	6			std	c5 knobs gc large
B1763-4	7	7		3	5	1	7	7	5	7	7	7	9	9	9	9	0	0				yes	c6 net knobs late
B1758-4	7	8		3	6	2	7	4	5	5	5	5	5	9	9	9	8	1	6			no	bc1 hh gc app- c6
NDTX8731-1R	6	6		2	9	2	7	2	8	7	7	9	6	9	9	9	0	4	7			yes	bc2 hn gc
MN 17922	7	8		5	9	2	8	4	6	6	6	6	7	9	9	9	1	0				no	knobs app-
B1758-3	7	7		3	8	2	8	3	5	6	6	7	6	7	9	9	8	0				no	gc hs c6 sils5 hh
B1492-12	7	8		5	9	2	6	2	4	6	6	7	8	9	9	9	0	0				no	app- c8 net
B1521-2	7	8		5	9	2	6	3	7	7	7	6	9	9	9	9	0	0				yes	knobs net rhz5
Norland	5	6		2	9	2	8	5	7	5	5	9	7	9	9	9	1	0				std	app- gc
Norland DR	4	5		2	9	2	8	3	5	8	8	8	8	7	9	9	0	0				std	heat sprouts
Redsen	4	3		1	8	2	8	2	7	7	7	8	7	9	9	9	0	0				std	gc good here
Norland SR	3	4		2	6	2	8	3	6	7	7	7	6	9	9	9	4	5	6			no	bc1 hh hn gc
B1497-33	7	7		7	9	7	7	4	7	3	3	2	7	5	9	9	11	0				no	hh knobs hs app-
Yukon Gold	7	6		2	9	8	8	2	6	6	6	7	7	9	9	9	12	0				std	hollow heart
NY T 17-2	7	7		2	9	2	8	8	6	6	6	6	9	9	9	9	0	6	6			no	red flesh bitter
B0811-4	2	3		1	9	2	7	2	7	6	6	7	9	9	9	9	0	0				no	small lh3 c8

(1) See NE-184 rating table for plant and tuber characters, tubers defects and chip color ratings.
 (2) HH = No. of Hollow Heart tubers out of 40. HN = No. of Heat Necrosis tubers out of 40 cut.

New Jersey Table 11. Yields, Specific Gravities, and Tuber Sizes for 15 Russet Potato Varieties, Harvested Late Season and Grown on a Sandy Loam Soil at the Snyder Agricultural Research & Extension Farm near Pittstown, NJ-2000(1).

Variety	Seed Source (2)	Total Yield cwt/a	Market Yield cwt/a	% of Sup.	Spec. Grav.	% O v e r		% Culls	% Tuber Sizes (4)				
						4 oz	8 oz		1	2	3	4	5
AO87277-6	or	514	449	114	1.085	97	74	10	3	23	28	22	24
Russet													
Norkotah	ne	493	436	110	1.071	92	62	4	8	29	25	16	22
Russet													
Norkotah 8	ne	525	427	108	1.072	93	67	13	7	26	24	18	25
ATX84706-2Ru	tx	476	425	108	1.072	97	85	8	3	12	14	22	49
TXA549-1Ru	tx	529	418	106	1.076	87	54	9	13	32	28	19	8
Superior	ne	463	395	100	1.074	86	51	1	14	35	36	13	2
Russet													
Norkotah 3	ne	528	386	98	1.072	92	71	21	8	21	20	20	31
TXNS 112	tx	478	369	93	1.072	92	71	16	8	21	30	20	20
TXNS 278	tx	487	363	92	1.076	94	75	21	6	19	25	21	28
A84095-1	ne	436	361	91	1.081	91	59	9	9	31	32	13	14
B9922-11	cf	383	360	91	1.082	95	70	1	5	25	33	22	15
TXNS 223	tx	475	356	90	1.072	90	64	16	10	26	22	25	17
MN18153	mn	386	350	89	1.072	94	71	3	6	23	28	20	22
Adora	ct	388	331	84	1.061	87	49	2	13	38	29	13	7
MN18710	mn	417	299	76	1.072	78	38	8	22	40	25	10	3
CV (4)		11	12		.250								
W-D Bayes	LSD 0.05	76	74		.004	3	11	6	3	12	9	9	8

(1) Plots were planted on 5/01, and harvested on 9/18.

(2) cf = USDA Chapman Farm, me = Univ. of Maine, mn = Univ. of Minnesota, ne = NE Regional Proj., ny = Cornell Univ. and tx = Texas A&M.

(3) Size 1 = Under 4 oz, S2 = 4 to 8 oz, S3 = 8 to 12 oz, S4 = 12 to 16 oz, and S5 = Over 16 oz.

(4) CV=Coef of Variation; W-D Bayes LSD 0.05=Waller Duncan Test For Least Significant Difference.

New Jersey Table 12. Plant and Tuber Characters, Tuber Defects, and Overall Rating for Varieties and Seedlings Grown near Pittstown, NJ 2000 (1).

Variety	PLANT			TUBER CHARACTERS					TUBER DEFECTS (2)					Over		
	A	A	M	S	C	T	S	D	A	S	G	H	S	H	N	R
	p	p	t	s	l	x	h	p	p	G	C	S	b	H	N	All
AO87277-6	9	8	6	8	5	3	7	7	7	5	9	9	6	9	0	yes
Russet																
Norkotah	6	8	3	9	5	3	8	5	7	7	7	9	9	12	0	std
Russet																hh good year
Norkotah 8	7	9	7	9	5	3	8	6	6	6	9	9	9	11	0	yes
ATX84706-2Ru	5	6	5	9	6	5	7	6	5	7	8	9	9	8	0	no
TXA549-1Ru	7	8	7	9	5	4	6	6	6	7	9	9	7	9	5	6
																no
Superior	6	7	2	9	7	6	5	6	8	7	9	9	9	0	0	std
Russet																very nice
Norkotah 3	8	8	7	9	5	2	8	6	5	6	8	9	9	19	1	6
TXNS 112	7	8	5	9	5	3	8	5	6	5	9	9	7	19	0	no
TXNS 278	8	8	6	9	5	3	8	5	6	5	7	9	9	15	6	6
A84095-1	7	7	6	9	5	3	8	7	8	6	7	9	9	11	0	yes
																app- large hh
B9922-11	7	8	7	9	5	2	7	5	6	8	8	9	9	16	0	no
TXNS 223	8	7	6	9	5	3	7	6	6	4	9	7	9	9	1	7
MN 18153	5	6	3	8	5	4	7	6	6	7	8	9	9	0	0	ok+
Adora	3	7	2	9	8	8	8	6	7	7	6	9	9	0	0	ok+
MN 18710	6	7	5	9	5	4	6	6	6	7	9	9	9	0	0	no
																app- small

(1) See NE-184 rating table for plant and tuber characters, tubers defects and chip color ratings.

(2) HH = No. of Hollow Heart tubers out of 40. HN = No. of Heat Necrosis tubers out of 40 cut.

New Jersey Table 13. Yields, Specific Gravities, and Tuber Sizes for 9 Round Potato Varieties, Harvested Late Season and Grown on a Silt Loam Soil at the Snyder Agricultural Research & Extension Farm near Pittstown, NJ-2000 (1).

Variety	Seed Source (2)	Total Yield cwt/a	Market Yield % of		Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
			cwt/a	Sup.		1 7/8	2 1/2	3		1	2	3	4	5
AF1775-2	me	715	618	136	1.085	99	86	12	12	1	13	34	46	6
Atlantic	ne	600	571	125	1.091	97	74	2	2	3	23	51	23	0
Reba	ct	568	546	120	1.070	99	91	3	3	1	8	44	43	3
B0766-3	cf	566	546	120	1.083	99	83	3	3	1	16	41	40	2
Eva	ny	542	524	115	1.068	99	89	3	3	1	10	32	51	5
Katahdin	cf	505	480	105	1.071	98	85	4	4	2	14	35	47	3
Superior	ne	532	455	100	1.075	90	59	3	3	10	32	49	10	0
Andover	ct	312	294	65	1.079	96	56	2	2	4	40	46	10	0
Eramosa	ct	208	166	37	1.068	99	91	19	19	1	8	30	49	12
CV (4)		14	14		.324									
W-D Bayes	LSD 0.05	95	86		.005	10	9	7	7	ns	7	15	10	4

(1) Plots were planted on 5/01, and harvested on 9/18.

(2) cf = USDA Chapman Farm, me = Univ. of Maine, ne = NE Regional Proj., ny = Cornell Univ..

(3) Size 1= Under 1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= Over 4".

(4) CV=Coef of Variation; W-D Bayes LSD 0.05=Waller Duncan Test For Least Significant Difference.

New Jersey Table 14. Plant and Tuber Characters, Tuber Defects, and Overall Rating for Varieties and Seedlings Grown near Pittstown, NJ 2000 (1).

Variety	PLANT			TUBER CHARACTERS					TUBER DEFECTS (2)							Over All Comments			
	A	A	P	M	S	C	T	S	D	A	S	G	H	S	H		H	N	R
	p	p	p	t	S	l	x	h	p	p	G	C	S	b	H		N	R	
AF1775-2	9	9		7	7	7	8	3	3	5	6	6	6	9	8	0		no app- gc hs lh9	
Atlantic	8	8		6	9	7	6	2	8	8	9	9	9	9	13	6	6	std hh hn lh8	
Reba	8	8		5	8	8	8	5	6	7	9	8	9	9	13	0		yes hh large gc lh6	
B0766-3	7	8		5	8	7	5	3	8	8	9	8	9	9	6	0		yes app+ nice lh8	
Eva	8	8		4	7	8	8	3	7	7	8	9	9	9	1	0		yes app+ br wh lh6	
Katahdin	8	7		4	8	8	8	4	3	6	8	9	9	9	8	0		std hh app- large lh6	
Superior	6	7		2	9	7	5	5	5	7	9	9	9	9	1	0		std good one lh6	
Andover	5	7		2	9	7	6	3	6	7	9	9	9	9	3	0		yes small hh lh2	
Eramosa	5	6		1	9	7	5	7	6	6	6	9	9	9	0	0		no bcl large knobs lh6	

(1) See NE-184 rating table for plant and tuber characters, tubers defects and chip color ratings.

(2) HH = No. of Hollow Heart tubers out of 40. HN = No. of Heat Necrosis tubers out of 40 cut.

Long Island, New York

J. B. Sieczka, J. V. Mazziliano,
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NE-184 White-skinned Clones: The highest total yield was produced by AF1758-7. Tubers of this line had the lowest specific gravity. High marketable yields were produced by Atlantic, Norwis, Yukon Gold, AF1758-7, AF1763-2 and NY115. The lines with the highest appearance scores were Yukon Gold and AF1615-1. The specific gravity of most of the lines in the experiment was considerably higher than expected, with Katahdin having a specific gravity of 1.078. Atlantic tubers had the highest specific gravity at 1.094 and AF1758-7 and AF1763-2 had the lowest specific gravity. There was a considerable amount of hollow heart in Katahdin, Atlantic and Yukon Gold.

White-skinned Cornell University Clones:

The highest total yield was produced by Katahdin, S32-3, T2-2, T27-21, T35-34 and T37-3. The highest marketable yield was produced by Katahdin, S32-3, T2-2, T20-15, T27-21, T28-1, T35-34, T35-39 and T37-3. The best appearing lines were T3-9, T28-1, T35-34 and T37-3. Tubers of T35-39 had the highest specific gravity and T28-1 tubers had the lowest. Hollow heart was a problem in Katahdin, T2-2, T3-5 and T35-34. Brown center plagued NY121 and S32-3.

Red- and Purple-skinned Clones: Clones that yielded significantly less than the high yielding standard, Chieftain, were: Dark Red Norland, B1495-6, B1758-4 and CO86218-2. The best appearing clones were B1495-6, B1763-4, T15-1, T15-3 and T17-2. Tubers of B1495-6, B1523-4, B1763-4 and S45-5 had the highest specific gravity. Hollow heart and moderate internal necrosis were problems in B1758-4. Chieftain tubers had a high percentage of slight internal necrosis. The remaining lines were relatively free of internal defects.

Russet-skinned Clones: Amey and A8495-1 produced higher total and marketable yields than Russet Norkotah. Tubers of both of the former entries also had higher specific gravity than Russet Norkotah. Tubers of A8495-1 tended to

be misshapen and irregularly shaped. Pink eye was observed in Russet Norkotah and A8495-1.

European entries: Four European potato varieties were compared to Superior. Sante and Sandy produced higher total and marketable yields and had higher specific gravity than Superior. Amandine produced lower marketable yield than the standard. Sandy had the lowest appearance ratings. All the European entries produced smaller tubers than Superior. Chain tubers, heat sprouts and irregular shapes were problems observed in Sandy, Amandine and Sante. Internal defects were most severe in Marine and Sante and to a lesser extent in Amandine. All of the European lines had slightly yellow flesh.

Seed size and spacing effect on NY121: The effect of seed piece size and spacing on yield, size distribution, and specific gravity of NY121 was investigated in an experiment established on 4/27/00. The experimental design was a 3 x 2 factorial with four replications. There were three seed sizes (1.0, 1.5 and 2.0 oz) and two spacings (9" and 12"). Plots were 4 rows by 15' with the two center rows used for data. Fertilizer rate and other cultural practices were the same as for varietal experiments. Vigor ratings taken on 6/9/00 demonstrated that seed size has a major effect on initial plant growth. Plants increased in vigor as seed size increased. The effect diminished through the season. Stem numbers per hill on 5/26/00 were 2.6 for 1.0 oz, 3.2 for 1.5 oz and 4.2 for 2 oz seed. There were no significant differences in marketable yield among treatments. However, tuber size increased as seed piece size decreased. Specific gravity of the tubers was not affected by any of the treatments. Tubers of NY121 were relatively small, somewhat irregular in shape, and had a marginal appearance rating. Another characteristic of this clone that is of some concern is its tendency toward brown center. The amount of brown center observed in this experiment ranged 5% to 35% of the tubers cut.

Acknowledgments: Seed was provided by R.L. Plaisted, Cornell University; K.G. Haynes, USDA; G.A. Porter, University of Maine; Childstock Farm, Malone, N.Y. The assistance of Bennett Orlowski, Rod Zeltmann, Mark Sisson, Sandra Mulvaney and Diane Hanwick is greatly appreciated.

Long Island Table 1. Tuber characteristics of potato clones grown on Long Island, N.Y.-2000

CLONE	Table	Color	Texture	Shape	Depth	Eye Depth		Appearance	Comments
						Lateral	Apical		
Chieftain	6,7	Pi	RS	O	SF-MT	MS	MS	5.8	Sk, Irr, L
Katahdin	2,3,4,5	W	RS	R-O	SF-MT	S	MD	6.3	St, N, L
Amandine	10,11	W Y	S	O-L	R	S	S	6.5	Banana, Some Sp, Lt Y Fl
Amey	8,9	B	HR	O-L	MT-SF	S	S	7	Sl Irr
Atlantic	2,3	T	N	R	R	S	MD	6.5	Dark Sk
DR Norland	6,7	Pi	RS	O-R	MT	MS-MD	MS-MD	5.5	Irr, L, Vari Color
Marine	10,11	W Y	S	O	R	S	S	6.5	Irr, Y Fl, L
Norwis	2,3	W	S	O	SF	MD	D-MD	5.8	Irr, Sl Y Fl
R. Norkotah	8,9	B	HR	L	MT	S	S	6.5	PE
Sandy	10,11	W	RS	R	MT	MS-MD	MD-D	4.3	Irr, CT, Sp, Lt Y Fl
Sante	10,11	W	RS	O-R	MT	MS-S	MS-S	5.8	Irr, CT, Sp, Lt Y Fl, PE
Superior	2,3	Bu	N	O-R	SF	MD	D	5	Irr, PE
Yukon Gold	2,3	Y	RS	R-O	MT	S	MS	7	L
A8495-1	8,9	B	MR	L	MT-SF	S	S	6.8	Irr, Kn, PE
AF1615-1	2,3	W Bu	RS	R-O	R-MT	S	MS	7	SED, N, L, Sm
AF1758-7	2,3	Bu	SN	O	MT	S	MS	4.5	Irr, hook shape
AF1763-2	2,3	Bu	SN	R-O	MT-SF	MS	MS	6.5	N
B1495-6	6,7	M DR	SN	O	MT-F	MS	MS	6.8	Sl Sk, Sl Y, Vari Color & Tex
B1523-4	6,7	M DR	SN	R-O	SF-MT	MS	MS-MD	6	L, N, Vari Color & Tex
B1758-4	6,7	M DR	RS	R-O	SF-MT	MS	MS-MD	6	Rot, L, Int. defects , Irr, Kn
B1763-4	6,7	D Pu	RS	O-R	R	MS	MS	7.3	Some SK & St
CO86218-2	6,7	DR	S-RS	O-R	R	S	MS	6.8	St! DR
NY115	2,3	W	RS	R-O	SF	S-MS	MS	6	Irr, N, L, St
NY121	4,5	W	RS	R	R-MT	S	MD	6	Lumpy, DSE, Squatty
S32-3	4,5	W	SN	R-O	MT	S	MS	6.3	L, Rh, Sc
S45-5	6,7	Pu	RS	O	MT-SF	MS-MD	MS	5.5	Irr, Pu Fl, Prot Eyes, Irrd
S48-6	6,7	M DR	S	O	MT-R	MS	MS	6.5	Irr, Pi Fl, Pi Rot
T11-2	6,7	MR	RS-SN	R-O	MT	MS	MS-MD	6	Sl Irr, L
T15-1	6,7	DR	RS-SN	R-O	R	MS	MS-MD	6.8	Att, DR, Sm, L
T15-3	6,7	MR	RS	R-O	MT	MS	MS	6.8	Sl Sk, L
T17-2	6,7	MR	S	O-L	R	S	S-MS	7.3	Mottled Pi Fl
T2-2	4,5	Bu Y	SN	O	MT	MS	MS	5.7	Irr, Sc, PE, Y Fl
T20-15	4,5	Bu	N	R	R	S-MS	D-MD	6.7	Irr, Sc, DSE, PE
T27-21	4,5	Bu	RS	R-O	MT	S-MS	D-VD	5.7	Irr, Pear, Sc, PE
T28-1	4,5	Bu	SN	R	R-MT	MS	MS	6.7	Irr
T3-5	4,5	W	RS	O-R	MT-SF	S	MS	4.7	Irr, L, PE
T3-9	4,5	W	RS	O-R	SF-MT	S	MS	6.7	L, Rot , Bl Sp, Irr
T35-19	4,5	Bu W	RS-SN	R	MT	MS	MS	6	Irr, Sm, L
T35-34	4,5	Bu	N	R-O	R-MT	MS	MS-MD	7	Net but OK, Sl Irr, Sc
T35-39	4,5	W	RS	R	MT	MS	MD-D	4.7	Irr, DSE, St, PE
T37-3	4,5	W	RS	R-O	SF-MT	S	MS	7.7	OK, Bright, Sm
T4-2	4,5	Bu	SN	O-R	SF	MS	MS	5.7	Rh , Irr, Sm

COLOR: B=brown, Bu=buff, Pi=pink, Pu=purple, R=red, T=tan, W=white, Y=yellow. Modifiers: L=light, M=medium, D=dark.

TEXTURE: N=netted, R=russet, S=smooth. Modifiers: H=heavy, M=moderate, R=Relatively, S=Slightly.

SHAPE: L=long, O=oblong, R=round. EYE DEPTH: D=deep, M=moderate, S=shallow.

TUBER DEPTH: MT=medium thick, R=round, F=flattened, SF=slightly flattened.

COMMENTS: Abbreviations in **bold** are major defects. AE = apical eyes, Br =bright, Ct=Chain Tubers,

Fl= flesh, Irr=irregular, Irrd=iridescent, Kn=knobs, L=prominent lenticels, Lt = light, N=Root lesion nematode lesions, PE=Pink Eye, Pi=pink, Sc=scab SE = stem end, Sk=skinned, Sl=slightly, Sm=small, Sp=sprouts, St=Stolons, SS=Silver scurf, VD = vascular discoloration.

Long Island Table 2. Yield, marketable yield, percentage of yield by grade, size distribution and specific gravity of NE-184 white-skinned clones grown at Riverhead, N.Y. - 2000 ¹

Clone	Total Yield cwt/A	Marketable Yield		Size Distribution (%)					Appear- ance	Spec Grav ²
		cwt/A	percentage of standard	2 - < 2"	2.5 - 2.5"	3.25 - 3.25"	4 - 4"	> 4"		
Season-134 days										
Katahdin	462	387	100	16	24	51	9	0	6.3	78
Atlantic	469	431	111	8	32	55	5	0	6.5	94
Superior	399	339	88	15	40	44	1	0	5.0	76
Norwis	428	402	104	5	22	60	12	1	5.8	76
Yukon Gold	440	402	104	9	24	57	10	0	7.0	85
AF1615-1	431	361	93	16	53	31	0	0	7.0	82
AF1758-7	543	436	113	20	23	49	9	0	4.8	65
AF1763-2	470	422	109	10	44	46	0	0	6.5	66
NY115	488	426	110	13	50	36	1	0	6.0	84
Waller-Duncan										
LSD (0.05)	(45)	(44)								(3)

¹Planted on 4/25/00, fertilizer rate was 100-200-200/A plus 60 lb N/A sidedressed, vine killed on

9/7/00, harvested on 9/25/00. Plot size 2 (34") rows X 12.5', spacing 9.3", 4 replications.

²-1.0 is excluded from specific gravity readings.

Long Island Table 3. Maturity, tuber shape, and internal and external defects of NE-184 white-skinned clones grown at Riverhead, N.Y. - 2000

Clone	Mat ¹		Tuber Defects (%)					Percentage				
	on	Tuber	Total	Sun-	Mis-	Growth	Other ²	Hollow	Brown	Internal Necrosis		
	9/1/00	Shape		burn	shapen	cracks		heart	center	Sl.	Mod.	Sev.
Season -134 days												
Katahdin	3	O - R	12	4	1	1	7(L,N)	48	0	0	0	0
Atlantic	1	R	3	1	0	1	1	20	3	8	5	3
Superior	1	O - R	9	0	2	0	7(PE)	3	0	3	0	0
Norwis	1	O	2	0	1	0	1	3	0	15	0	0
Yukon Gold	1	O - R	5	1	0	0	3(L)	20	8	0	0	0
AF1615-1	3	R - O	6	3	0	0	3(L,N)	0	0	0	0	0
AF1758-7	4	O	16	1	14	0	2	5	0	0	5	0
AF1763-2	1	R - O	3	1	1	0	1	0	0	0	0	0
NY115	2	R - O	3	1	1	0	1	5	3	0	0	0

¹-See rating system outlined in the text.

²-Other includes defects such as rhizoc., prom. lenticels, pink eye, nematode, decay and other defects scorable against a U.S. No.1 grade, primary defects listed in (). Mechanical defects were not scored.

Long Island Table 4. Yield, marketable yield, percentage of yield by grade, size distribution and specific gravity of white-skinned clones grown at Riverhead, N.Y. - 2000-¹

Clone	Total Yield cwt/A	Marketable Yield cwt/A	percentage of standard	Size Distribution (%)					Appear- ance	Spec Grav ²
				< 2"	2 - 2.5"	2.5 - 3.25"	3.25 - 4"	> 4"		
Season - 135 days										
Katahdin	521	443	100	15	26	51	8	0	6.0	72
NY121	443	388	88	12	52	35	1	0	5.8	80
S32-3	533	428	97	20	27	46	7	0	6.3	73
T2-2	515	471	106	9	20	53	18	0	5.5	80
T3-5	475	318	72	33	26	35	6	0	4.7	79
T3-9	424	329	74	22	41	35	1	0	6.7	77
T4-2	459	365	82	21	37	41	2	0	5.3	84
T20-15	461	402	91	13	32	51	4	0	6.3	69
T27-21	558	467	105	16	33	45	6	0	5.7	69
T28-1	446	406	92	9	29	56	6	0	6.7	64
T35-19	463	374	84	19	54	26	2	0	6.0	82
T35-34	565	519	117	8	34	51	7	0	7.0	83
T35-39	481	407	92	15	37	46	3	0	4.7	88
T37-3	544	468	106	14	46	37	2	0	7.3	77
<i>Waller-Duncan</i>										
LSD (0.05)	(64)	(74)								(3)

¹ Planted on 4/25/00, fertilizer rate was 100-200-200/A plus 60 lb N/A sidedressed, vine killed on 9/7/00, harvested on 9/25/00. Plot size 2 (34") rows X 12.5', spacing 9.3", 3 replications.

² -1.0 is excluded from specific gravity readings.

Long Island Table 5. Maturity, tuber shape, and internal and external defects of white-skinned clones grown at Riverhead, N.Y. - 2000

Clone	Mat ¹ on 9/1/00	Tuber Shape	Tuber Defects (%)					Percentage			
			Sun- Total	Mis- burn	Growth shapen	cracks	Other ²	Hollow heart	Brown center	Int. Necrosis Sl. Mod Sev.	
Season - 135 days											
Katahdin	4	R - O	10	4	3	2	2	23	0	3	0 0
NY121	1	R	3	0	2	0	0	0	13	0	0 0
S32-3	1	R - O	14	3	2	0	9(L,Sc,Rh)	5	18	3	5 0
T2-2	2	O	6	1	2	1	2	13	0	0	0 0
T3-5	2	O - R	27	5	1	1	21(L)	13	3	0	0 0
T3-9	1	O - R	11	0	2	0	9(L,Rot)	3	5	0	0 0
T4-2	2	O - R	12	2	2	1	7(Rh)	0	0	0	0 0
T20-15	1	R	6	0	0	2	4(Sc,PE)	0	0	0	0 0
T27-21	1	R	9	3	4	0	3(Sc,PE)	0	0	0	0 0
T28-1	1	R	4	1	0	0	2	0	0	0	0 0
T35-19	2	R	3	1	1	0	2	3	0	0	0 0
T35-34	3	R - O	3	0	0	0	2	13	0	0	0 0
T35-39	3	R	8	1	4	0	3	0	3	0	0 0
T37-3	1	R - O	3	0	1	0	1	0	0	0	0 0

¹ See rating system outlined in the text.

² Other includes defects such as rhizoc., prom. lenticels, pink eye, nematode, rot and other defects scorable against a U.S. No. 1 grade, primary defects listed in (). Mechanical defects were not scored.

Long Island Table 6. Yield, marketable yield, percentage of yield by grade, size distribution and specific gravity of red- and purple--skinned clones grown at Riverhead, N.Y. - 2000 ¹

Clone	Total Yield	Marketable Yield		Size Distribution (%)					Appear- ance	Spec Grav ²
	cwt/A	cwt/A	percentage of standard	< 2"	2.5"	3.25"	4"	> 4"		
<u>Season -135 days</u>										
Chieftain	538	511	100	5	24	64	8	0	5.8	68
D.R.Norland	351	293	57	17	58	25	0	0	5.5	66
B1495-6	300	243	48	19	54	27	0	0	6.8	78
B1523-4	499	432	84	14	39	43	4	0	6.0	78
B1758-4	399	283	55	29	44	26	1	0	6.0	69
B1763-4	387	363	71	6	32	58	4	0	7.3	77
CO86218-2	362	266	52	51	33	16	0	0	6.8	68
S45-5	604	513	100	15	34	49	2	0	5.5	75
S48-6	472	394	77	16	45	33	5	0	6.5	65
T11-2	555	480	94	13	17	57	13	0	6.0	74
T15-1	489	414	81	15	54	31	0	0	6.8	69
T15-3	439	387	76	12	55	33	0	0	6.8	65
T17-2	361	284	56	21	63	15	0	0	7.3	71
<i>Waller-Duncan</i>										
LSD (0.05)	(147)	(154)								(3)

¹ Planted on 4/25/00 , fertilizer rate was 100-200-200/A plus 60 lb N/A sidedressed, vine killed on 9/7/00, harvested on 9/25/00. Plot size 2 (34") rows X 12.5', spacing 9.3", 4 replications.

² -1.0 is excluded from specific gravity readings.

Long Island Table 7. Maturity, tuber shape, and internal and external defects of red- and purple-skinned clones grown at Riverhead, N.Y. - 2000

Clone	Mat ¹	Tuber Shape	Tuber Defects (%)					Percentage				
	on		Total	Sun- burn	Mis- shapen	Growth cracks	Other ²	Hollow heart	Brown center	Internal Necrosis		
	9/1/00									Sl.	Mod.	Sev.
Season -135 days												
Chieftain	2	O	1	0	0	0	1	0	3	13	5	0
D.R.Norland	1	O - R	3	0	3	0	0	0	0	0	0	0
B1495-6	1	O	1	0	0	0	0	0	0	0	0	0
B1523-4	2	R - O	4	0	1	0	2	0	0	0	0	0
B1758-4	2	R - O	15	1	6	3	4(L,rot)	5	5	0	10	0
B1763-4	2	R - O	0	0	0	0	0	0	0	0	0	0
CO86218-2	4	O - R	8	0	1	5	1	3	0	0	0	0
S45-5	1	O	8	0	6	2	0	0	0	0	0	0
S48-6	1	O	7	0	5	0	2	0	0	5	0	0
T11-2	3	R - O	11	1	1	0	9(L,N)	5	0	0	0	0
T15-1	1	R - O	1	0	1	0	1	0	0	0	0	0
T15-3	1	R - O	3	0	1	0	1	0	0	0	0	0
T17-2	1	O - L	5	2	2	0	1	0	0	0	0	0

¹ See rating system outlined in the text.

² Other includes defects such as rhizoc., prom. lenticels, pink eye, nematode, rot and other defects scorable against a U.S. No. 1 grade, primary defects listed in (). Mechanical defects were not scored.

Long Island Table 8. Yield, marketable yield, percentage of yield by grade, size distribution and specific gravity of russet-skinned clones grown at Riverhead, N.Y. - 2000. ¹

Clone	Total Yield	Marketable Yield		Size Distribution in oz (%)					Appear- ance	Specific ² Gravity
	cwt/A	cwt/A	percentage of standard	< 4	4 to 8	8 to 12	12 to 16	> 16		
Season 135 days										
Rus Norkotah	348	179	100	49	39	12	0	0	6.5	76
Amey	410	307	171	24	48	22	6	1	7.0	86
A8495-1	396	256	143	35	46	16	3	0	6.3	83
<i>Waller-Duncan</i>										
LSD (0.05)	(37)	(52)								(4)

¹Planted on 4/25/00, fertilizer rate was 100-200-200/A plus 60 lb N/A sidedressed, vine killed on 9/7/00, harvested on 9/28 & 10/3/00.

²1.0 is excluded from specific gravity readings

Long Island Table 9. Maturity, tuber shape, and internal and external defects of russet-skinned varieties grown at Riverhead, N.Y. - 2000.

Clone	Mat. ¹	Tuber Shape	Tuber Defects (%)					Percentage				
	on		Total	Sun- burn	Mis- shapen	Growth cracks	Other ²	Hollow heart	Brown center	Internal Necrosis		
	9/1/00									Sl.	Mod.	Sev.
Season 135 days												
R. Norkotah	1	L	12	0	2	0	9	48	3	3	0	0
Amey	2	O - L	4	0	2	2	0	60	0	5	0	0
A8495-1	3	L	12	1	6	0	5	50	0	0	0	0

¹ See rating system outlined in the text.

² Other includes defects such as rhizoctonia, prom. lenticels, nematode, pink eye, decay and other defect scorable against a U.S. No. 1 grade, primary defects listed in (). Mechanical defects were not scored.

Long Island Table 10. Yield, marketable yield, percentage of yield by grade, size distribution and specific gravity of four European clones and Superior grown at Riverhead, N.Y. - 2000. ¹

Clone	Total Yield cwt/A	Marketable Yield		Size Distribution (%)				Appear- ance	Spec. ² Gravity
	cwt/A	percentage of standard	< 2"	2 to 2.5"	2.5 to 3.25"	3.25 to 4"			
Season-135 days									
Superior	331	297	100	10	44	43	2	6.0	74
Amandine	322	202	68	37	53	10	0	6.5	63
Marine	362	279	94	23	63	13	0	6.5	64
Sandy	471	364	122	23	54	22	0	4.3	90
Sante	487	358	121	27	38	34	2	5.8	85
Waller-Duncan									
LSD (0.05)	(36)	(45)							(7)

¹ Planted on 4/25/00, fertilizer rate was 100-200-200/A plus 60 lb N/A sidedressed, vine killed on 9/7/00, harvested on 9/28/00.

² -1.0 is excluded from specific gravity readings.

Long Island Table 11. Maturity, tuber shape, and internal and external defects of four European varieties and Superior grown at Riverhead, N.Y. - 2000.

Clone	Mat ¹	Shape	Tuber Defects (%)					Percentage				
	on		Total	Sun- burn	Mis- shapen	Growth cracks	Other ²	Hollow heart	Brown center	Internal Necrosis		
	9/1/00									Sl.	Mod.	Sev.
Season 135 Days												
Superior	1	O - R	4	0	1	0	3(PE)	0	0	0	0	0
Amandine	1	O - L	11	1	9	0	1	0	0	10	5	8
Marine	1	O	6	0	3	2	1	0	0	35	5	10
Sandy	4	R	8	1	5	1	0	0	0	0	0	0
Sante	4	O - R	17	1	7	2	7(PE)	0	3	25	10	0

¹ -See rating system outlined in the text.

² -Other includes defects such as rhizoctonia, prominent lenticels, pink eye, decay and other defects scorable against a U.S. No. 1 grade, primary defects listed in (). Mechanical defects were not scored.

Long Island Table 12. Yield and quality of early selection lines and recently named varieties in a non-replicated observation trial. 2000

Clone	Yield (cwt/A)		% of standard 2 to 4	% Defects	Spec. Grav. ¹	% Internal Defects						Color	Texture	Shape	Depth	Eye		Depth	Apical	Appearance	Comments ²
	Total	2-4"				HH	BC	Internal Necrosis			S										
								Sl.	M	S											
Season-127 days																					
White-skinned clones																					
Katahdin - U	660	540	96	15	80	40	0	30	0	0	W	S	O-R	SF	MS	MD-D	6	Sc			
Katahdin - NE	543	455	81	12	73	60	0	0	0	0	W	S	O-R	F-SF	S	D	6	SI Irr, PE			
Superior	488	391	70	13	73	0	0	0	0	0	BU	SN	O	MT	MS-MD	D	6	PE, SI Irr			
Yukon	475	287	51	35	83	70	0	0	0	0	W-PI	S	O	MT	S	MS-ME	6	Sc, PE			
AF2082-18	594	473	84	16	70	60	0	20	0	0	W	RS	R-O	MT	MS	MS	6	Sk1, SED			
AF2086-11	499	446	80	7	64	0	0	0	0	0	BU	SN	O	R	MS	MS	7	Rot, SI Irr			
AF2135-1	826	654	117	17	84	60	10	30	0	0	W	RS	O	F	MS	MS	5	Irr, Rh			
B1240-1	813	676	121	14	89	10	0	0	0	0	BU	SN	R-O	R-MT	MS	MS	5	SI Irr			
B1598-4	450	409	73	2	75	50	0	0	0	0	BU	SN	R-O	R	S	MD	6	Sm -Med, Net			
B1871-1	476	434	78	3	65	0	0	0	0	0	BU	RS	R-O	MT	S	MS	7	SED, SI Irr			
B1884-9	512	427	76	14	85	0	0	10	0	0	BU	O-R	MT	MT	MS	MS	7				
U22-6	562	487	87	3	71	0	0	0	0	0	W	S	R	R	S	MS	7	Small, Rh			
U47-2	414	341	61	12	85	0	0	0	0	0	W	S	O	R-MT	S	MS	7	Short plot			
U47-12	703	583	104	12	74	0	0	10	0	0	W	S	R-O	R	MS	MD	7	Rh, SI Irr			
U47-21	647	553	99	7	82	10	10	10	0	0	W	SN	O-R	MT	S	MS	7	L			
U106-26	558	473	84	7	75	0	10	0	0	0	W	S	O-R	MT	S	MS	7+	SI Irr, Nice, Sc			
U125-8	567	521	93	3	74	10	30	10	0	0	W	RS	R	MT	MS	MD	5	DSE, Irr, SS			
U125-43	671	495	88	24	74	0	0	0	10	60	BU	SN	O-R	MT	MS	MD	5	Rot, Irr, Fus, SIY			
U126-14	458	384	68	6	76	0	0	0	0	0	W	S	O-R	MT	MS	MS	7	SI Irr			
U128-8	621	455	81	20	80	20	0	10	20	0	W	RS	R	R	MS	D	5	PE, SI Irr, Sc			
Red-skinned clones																					
Chieftain - 1	580	535	95	2	73	0	0	20	0	0	LR	S	O	SF	MS	MS	7				
Chieftain - 2	599	560	100	2	72	0	0	10	0	0	PI	S	O	SF	MS	MS	7	Some Sk			
Redsen	550	485	87	5	68	0	0	0	0	0	DR	S	R	R	S	S	8	Rh.L, IBH			
B1322-19	472	439	78	1	70	0	0	0	0	0	DR	RS	R-O	R	MS	MS	8	L			
B1491-5	474	382	68	10	75	0	0	0	0	0	M-DR	RS	R	R	S	S	7	Sc, SI Irr, Yel			
B1768-20	379	307	55	0	68	0	0	0	0	0	LR	S	R	R	S	S	6	Sp, L			
U71-5	400	336	60	13	64	0	0	0	0	0	DR	RS	R-O	R	MS	MS	7	Some Sk			
U71-6	508	321	57	30	72	20	0	0	0	0	DR	RS	R	R	MS	MS	7	SI Irr, Air Cr			
Russet-skinned clones																					
R. Norkotah	439	188	34	35	75	50	0	0	0	0	B	HR	L	MT	S	S	6	Irr, PE!			
B1521-2	525	366	65	18	78	10	0	0	0	0	B	S-MR	R	R	S	MS	6	Irr, Rh			

Long Island Table 12. Yield and quality of early selection lines and recently named varieties in a non-replicated observation trial. 2000

Clone	Yield (cwt/A)		% of standard 2 to 4	Defects	%	Spec. Grav. ¹	% Internal Defects					Color	Texture	Shape	Depth	Eye Depth		Appearance	Comments ²
	Total	2-4"					HH	BC	Internal Necrosis							Lateral	Apical		
									Sl.	M	S								
Clones with low yields and/or poor appearance																			
Marine												WY	RS	O	MT	S	S	6	Low yield, Rot
Sante												W	RS	O-R	MT	S	MS-MC	5	Irr, Sp
Sandy												W	R	R-O	SF	S	MS-MC	6	Sp, Irr, Kn
Amandine												WY	RS	L-O	MT	S	S	5	Irr
NY121												W	RS	R	R	S	MD	6	Small
AF2055-1												BU	N	O	MT-SF	MS	MS	6	Irr
AF2059-6												W	S	L	R	S	S	7	Low yield, Rot
B0718-3												BU	SN	O-L	MT	S	MS	5	Irr, Very Late
B1327-6												BU	RS-MN	R	R	S	MS	7	DSE, Small
B1497-33												BU	N	O	SF	MS	MS	5	Irr
B1591-1												BU	N	O-R	MT	S	MS	4	Sp, Irr, Kn
B1801-3												YBU	SN	O-R	MT	S	S	7	Sl Irr, Sl YF
B1801-6												YB	SN	O-R	MT	S	MS	7	Sm, Low Yield, Lt Y
B1804-6												BU	N	R	R	S	S	5	Sm, Sp, Irr
B1829-5												BU	N	R	MT	S	S	7	Sm, Low Yield
B1856-10												BU	N	O	MT	S	S	4	Kn, Irr, Sp
B1870-17												BU	N	O	MT	S	MS	7	GC
B1870-3												BU	SN	R-O	MT	S	MS	5	Irr, Kn, Sp
B1873-6												BU	SN	R	R	S	MS	7	Sm, Low Yield
B1880-4												BU	SN	O-R	MT	S	S	7	Sm, Low Yield
B1924-6												BU	N	O-R	MT	MS	MD	5	Irr, Good yield
B1964-4												BU	SN	R	MT	S	S	6	Sp!
U62-2												W	RS	R	MT	S	MD	7	Good Yield, Sm
U62-4												BU	SN	O	MT-SF	S	S	7	Sm-M, Good Yield
U107-16												W	S	O-R	MT	S	MS	8	Sm, Low yield
U109-6												BU	RS	R	SF	MS	MS	6	L, Irr, DSE
U124-14												BU	SN	O	SF	MS	MS	5	Irr, Mod Yield
U127-7												W	RS-SN	R	MT	MS	MD	5	DSE, Irr
U128-4												W	S	R	MT	S	MS	7	Sl Irr, Sm

¹ -1.0 is excluded from specific gravity readings.

² -See footnotes in Table 1.

Long Island Table 13. The effect of seed piece size and spacing on yield, marketable yield, percentage of yield by grade, size distribution and specific gravity of NY121 grown at Riverhead, N.Y. - 2000.¹

Seed Size (oz)	Spacing	Total Yield cwt/A	Marketable Yield		Size Distribution (%)					Size Distribution				Specific ² Gravity
			cwt/A	percentage of standard	< 2"	2 to 3.25"			> 4"	2 to 4 in.		2.5 to 4 in.		
						2 to 2.5"	2.5 to 3.25"	3.25 to 4"		2 to 4 in.				
Season-133 days														
1.0	9"	404	361	100	11	43	42	5	0		89	46	78	
1.0	12"	378	344	95	9	42	44	4	0		91	48	78	
1.0	9"	436	383	106	12	53	33	2	0		88	35	79	
1.0	12"	407	362	100	11	51	37	1	0		89	38	79	
1.0	9"	392	330	91	16	60	25	0	0		84	25	79	
1.0	12"	420	366	101	13	55	31	1	0		87	32	79	
Main effects:														
1.0		391	353	98	10	43	43	4	0		90	47	78	
1.5		422	373	103	12	52	35	1	0		88	36	79	
2.0		406	348	96	14	57	28	1	0		86	28	79	
9"		411	358	99	13	52	33	2	0		87	35	78	
12"		402	357	99	11	49	38	2	0		89	40	79	

¹ Planted on 4/27/00, fertilizer rate was 100-200-200/A plus 60 lb N/A sidedressed, vine killed on 9/7/00, harvested on 10/4/00

² 1.0 is excluded from specific gravity readings.

Long Island Table 14. Maturity, tuber shape, and internal and external defects of NY121 grown at 3 seed sizes and 2 spacings at Riverhead, N.Y. - 2000.

Seed Size (oz)	Vigor on 6/9/00	Tuber Data ²		Tuber Defects (%)					Percentage			
		Shape	Appearance	Total	Sun-burn	Mis-shapen	Growth cracks	Other ³	Hollow heart	Brown center	Internal Necrosis	Sl. Mod. Sev.
Season-133 days												
1.0	6	R	5.5	3	1	1	0	2	0	15	0	0
1.0	6	R	5.5	3	1	1	0	1	0	20	0	0
1.0	8	R	5.0	2	0	1	0	0	0	35	0	0
1.0	7	R	5.3	2	1	1	0	0	0	15	0	0
1.0	9	R	5.5	2	0	1	0	0	0	5	0	0
1.0	8	R	5.3	2	1	1	0	0	0	20	0	0

¹ Rated on a scale of 1 to 9, 1 = dead plants, 9 = vigorous plants.

² See rating scale in text.

³ Other includes defects such as rhizoctonia, prominent lenticels, pink eye, decay and other defects scorable against a U.S. No. 1 grade, primary defects listed in (). Mechanical defects were not scored.

Upstate New York

D.E. Halseth, W.L. Hymes and R.L. MacLaury

Program Scope:

Potato variety yield trials were conducted in four counties in upstate New York in the year 2000 in which a total of 37 named and 70 numbered clones were evaluated. Seven replicated variety yield trials were conducted at the Thompson Vegetable Research Farm at Freeville in Tompkins County on a Howard gravelly loam soil. Grower trials were conducted on mineral soils near Arkport (Steuben County) and Castile (Wyoming County) and on a muck soil near Savannah (Wayne County). All trials at Freeville and on grower cooperator farms were grown using standard commercial cultural practices. Trials at the Cornell research farm were irrigated as needed. As evaluation of potato lines with golden nematode (GN) resistance is of high priority, one named and 54 numbered entries in these trials have GN resistance. Marketable yield, tuber quality and appearance, maturity, storage life and processing potential are among the important characteristics which are evaluated.

Freeville Research Farm Results:

In the early maturity trial, AF1763-2 out yielded Superior by 131% of its marketable yield. Clone NY125 (S28-2) out yielded Superior by 125% of its marketable yield. Both clones had very few external or internal defects and intermediate specific gravity.

The medium maturity yield trial with 12 entries had three GN resistant clones and varieties with marketable yield above 400 cwt. per acre. Penta had very high tuber counts and hence the lowest average tuber weight. S111-28 and W1242 had a high percentage of hollow heart. Eva had the best tuber appearance but the highest incidence of green tubers.

Of 18 entries in the medium-late trial, 15 had GN resistance and 14 of these GN lines had marketable yield above 300 cwt. per acre. Keuka Gold (NY101) was again the highest yielder, with marketable yield at 512 cwt. per acre. Pike had the highest specific gravity while NY121 and Snowden had the highest tuber set. NY115 had the best tuber appearance and also

very few defects. Kennebec had the highest total of external defects, specifically green tubers.

The late maturity trial had four GN lines with marketable yield above 400 cwt. per acre. Sandy had both the highest marketable yield (514 cwt./a) and highest tuber set (13.4 tubers/foot of row). B1425-9 had the highest specific gravity while Genesee was the lowest in gravity but best in tuber appearance.

In the advanced Cornell "T" clone trial, seven out of 11 out-yielded Atlantic. T27-21 had the highest yield, with marketable yield of 466 cwt./a (122% of Atlantic), and also the best tuber appearance. T2-2 had a high percentage of external defects while T4-2 had hollow heart problems. T37-3 had very few external or internal defects while still having very good yield.

There are few GN resistant red-skinned clones currently available. Chieftain (GN susceptible), frequently the highest yielding red in the NYS potato industry, was the second highest yielder in the red trial. The GN resistant clone T11-2 was the highest yielder at 512 cwt./a marketable yield. Most clones had few external or internal defects.

Amey (B9922-11) was the only GN resistant russet-skinned clone available for our russet yield trial. This clone in the past has frequently out-yielded the industry standard Russet Burbank in marketable yield, but this year it was about equal (99%). A087277-6, Russet BakeKing and Russet Norkotah-8 had marketable yields greater than Russet Burbank of 112%, 102% and 103%, respectively. Amey and Russet Norkotah-8 had the best tuber appearance ratings.

Grower County Trial Results:

Round red and white tablestock clones were evaluated on muck soil at the Savannah trial. Seven red clones had marketable yield above Chieftain. Dark Red Norland had the lowest specific gravity (1.058) while B1952-2 had the highest (1.079). Cornell clone U71-5 had the lowest tuber set (7.0 tubers per foot of row) while T15-3 was the highest (15.8 tubers/foot). Fourteen round white clones had marketable yield above Atlantic or Superior. Keuka Gold, NYE11-45, U47-12 and U128-8 had marketable yield above 400 cwt./a. T3-3 had the lowest

tuber set (6.2 tubers/foot) while T35-34 had the highest tuber set (17.0 tubers/foot).

Steuben and Wyoming County chip trials had the same 12 GN clones and one susceptible variety (Snowden) grown on mineral soils. Only NY120 and Snowden had marketable yields above Atlantic at both locations. NY115 had the lowest tuber set and marketable yields at both trial sites. Reba had the lowest specific gravity at both sites. Internal vascular discoloration of tubers was found in B0178-34, Kanona, NY120, Snowden and NY124 (S14-2).

Processing and Cooking Evaluations:

Agtron chip color readings (Table 19) are presented for five replicated yield trials grown at Freeville and two grower yield/storage/chip trials in Steuben and Wyoming counties. Andover had the best chip color directly out of the field while B0766-3, B1425-9, B1873-6, NY115, Snowden, T35-39 and W1313 had very good color from Freeville trials. B0178-34 consistently had the best chip color from both grower trials.

After-cooking darkening and sloughing ratings are presented for seven replicated yield trials at Freeville (Table 20) and four grower yield trials

in Orleans, Wayne, Steuben and Wyoming Counties (Table 21). Varieties and clones with both good cooking and boiling scores were Amandine, Castile, Cherry Red, Chieftain, Eramosa, Eva, Geneva, Katahdin, Keuka Gold, Monona, Salem, Superior, Yukon Gold, AF1758-7, AF1763-2, AF1808-18, B1495-6, B1523-4, B1763-4, B1816-5, CO86218-2, NY118, T11-2, T15-3, T20-15 and T28-1. AO87277-6, NY120, and T3-5 had poor scores for both ACD and sloughing.

Acknowledgements:

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Regional potato research project NE-184 rating codes are used in tables for plant and tuber characteristics.

Upstate New York Table 1. Yield, marketable yield, grade size distribution, tuber number per foot and weight, and specific gravity for the early maturity trial grown at Freeville, New York - 2000.

Variety/Clone	Total Yield		Mkt. Yield		Size Distrib. by Class ¹					Size Distrib.(%)			Mean Tuber		Spec. Grav.
	cwt/A	std	cwt/A	std	(% of total yield)					1 7/8 to 4 in.	2 1/2 to 4 in.	#/ft	wt(oz)		
					1	2	3	4	5						
AF1565-12	347	98	293	98	5	36	53	5	2	94	58	6.9	5.3	77	
AF1611-9	244	70	209	70	8	51	35	5	2	91	40	5.7	4.5	73	
AF1763-2	460	131	390	131	6	44	41	8	1	93	49	10.0	4.8	73	
AF1921-9	400	108	322	108	6	42	38	11	3	91	49	8.3	5.0	83	
AF1938-3	414	108	323	108	4	35	44	11	7	89	54	7.5	5.8	81	
Amandine	352	88	262	88	12	71	17	0	0	88	17	10.9	3.4	67	
Andover	367	111	330	111	3	43	46	7	1	96	53	7.1	5.4	86	
Eramosa	294	88	263	88	4	35	50	10	1	96	60	5.6	5.4	71	
Marine	361	99	294	99	10	54	34	1	0	90	35	9.4	4.0	68	
NY125 (S28-2)	414	125	374	125	5	37	49	9	0	95	58	8.4	5.1	78	
Sante	378	96	287	96	7	45	37	8	2	91	46	8.4	4.7	86	
Superior (std)	333	100	298	100	6	55	35	4	0	94	39	7.5	4.6	80	
Waller-Duncan															
LSD (k=100)	38		38									0.8	0.6	3	
C.V. (%)	(8)		(9)									(8)	(9)	(3)	

¹Size classes: 1 = 1" to 1 7/8", 2 = 1 7/8" to 2 1/2", 3 = 2 1/2" to 3 1/4", 4 = 3 1/4" to 4", 5 = over 4"

Plant Date: May 3 Maturity Ratings: Aug 26 Mow Vine Date: Aug 28 Harvest Date: Aug 29

Upstate New York Table 2. Plant maturity, tuber shape and appearance, and external and internal tuber defects for the early maturity trial grown at Freeville, New York - 2000.

Variety/Clone	Plant ¹		External Tuber Defects (%)				Int. Tuber Defects (%) ²				
	Mat. At Vinekill	Tuber Data ¹ Shape	Tuber Appear.	Sun-			Holl. Heart	Vasc. Disc.	Int. Nec.		
				Total	Green	Mis-shapen					
					Growth	Cracks	Rot				
AF1565-12	2.1	5.0	5.8	9.1	5.7	1.7	0.4	1.3	2.5	0.0	7.5
AF1611-9	1.0	2.0	5.1	5.0	2.9	0.6	1.5	0.0	2.5	2.5	5.0
AF1763-2	1.6	2.0	4.6	8.1	4.3	2.4	1.4	0.0	0.0	0.0	0.0
AF1921-9	1.1	2.0	5.5	10.5	8.7	1.4	0.4	0.0	0.0	0.0	0.0
AF1938-3	3.8	3.0	4.9	11.4	8.7	0.6	2.0	0.1	0.0	0.0	0.0
Amandine	1.4	8.0	5.5	14.3	6.6	7.6	0.0	0.1	0.0	0.0	0.0
Andover	1.0	1.0	7.0	6.1	5.0	0.2	0.8	0.0	0.0	0.0	0.0
Eramosa	1.0	2.0	5.0	6.3	2.0	2.3	1.4	0.5	2.5	2.5	0.0
Marine	1.1	5.0	6.3	8.2	4.0	2.4	0.5	1.5	0.0	0.0	55.0
NY125 (S28-2)	4.3	3.0	5.8	4.6	3.4	0.9	0.0	0.3	0.0	0.0	2.5
Sante	5.0	2.0	4.8	14.9	3.7	9.2	1.4	0.6	0.0	2.5	0.0
Superior (std)	1.0	2.0	4.4	4.7	2.9	1.0	0.2	0.5	0.0	2.5	0.0

¹See the standard NE184 rating system for a key to these ratings, in the appendix to this report.

²Based on a 10-tuber sample from each replication. The tubers were taken from size categories 3 and 4.

Upstate New York Table 3. Yield, marketable yield, grade size distribution, tuber number per foot and weight, and specific gravity for the medium maturity trial grown at Freeville, New York - 2000.

Variety/Clone	Total Yield		Mkt. Yield % of std	Size Distrib. by Class ¹ (% of total yield)					Size Distrib. (%)		Mean Tuber		Spec. Grav.
	cwt/A	cwt/A		1	2	3	4	5	1 7/8 to 4 in.	2 1/2 to 4 in.	#/ft	wt(oz)	
Atlantic (std)	479	408	100	5	42	44	7	1	94	52	9.6	5.2	97
B0564-9	356	304	75	6	44	38	9	4	90	47	7.1	5.2	85
B0766-3	449	386	95	2	26	46	18	7	91	65	7.0	6.7	89
Eva	502	393	96	3	30	50	13	4	94	64	8.6	6.1	78
Monona	289	233	57	5	45	39	9	2	93	48	6.3	4.8	75
Penta	467	381	93	11	62	27	1	0	89	28	11.5	4.2	88
S32-3	542	460	113	5	44	41	7	3	92	48	10.2	5.5	81
S111-28	322	286	70	5	58	33	3	1	94	36	7.0	4.8	94
Salem	506	427	105	5	39	39	13	4	92	52	9.9	5.3	73
W1242	489	413	101	3	41	46	9	1	96	55	9.5	5.4	92
W1313	463	402	98	8	56	35	2	0	92	37	10.0	4.8	103
Yukon Gold	407	342	84	3	35	43	13	6	92	56	6.6	6.4	88
Waller-Duncan													
LSD (k=100)	37	39									1.9	1.5	3
C.V. (%)	(7)	(8)									(16)	(16)	(2)

¹Size classes: 1 = 1" to 1 7/8", 2 = 1 7/8" to 2 1/2", 3 = 2 1/2" to 3 1/4", 4 = 3 1/4" to 4", 5 = over 4"
Plant Date: May 4 Maturity Ratings: Aug 29 Vine-Kill Date: Aug 30 Harvest Date: Sep 5

Upstate New York Table 4. Plant maturity, tuber shape and appearance, and external and internal tuber defects for the medium maturity trial grown at Freeville, New York - 2000.

Variety/Clone	Plant ¹		Tuber Data ¹ Shape	External Tuber Defects (%)					Int. Tuber Defects (%) ²			
	Mat. At Vinekill	Tuber Data ¹ Shape		Total	Sun- Green	Mis- shapen	Growth Cracks	Rot	Holl.		Int.	
									Heart	Vasc.	Disc.	Nec.
Atlantic (std) B0564-9	4.4	1.0	6.6	8.8	5.6	1.6	0.8	0.8	0.0	2.5	0.0	0.0
	1.1	2.0	5.8	4.9	4.4	0.2	0.1	0.1	10.0	2.5	0.0	0.0
B0766-3 Eva	6.1	3.0	4.0	4.8	2.8	1.5	0.0	0.5	0.0	0.0	0.0	0.0
	3.5	1.0	8.0	15.4	10.6	3.8	0.9	0.2	5.0	0.0	2.5	2.5
Monona Penta	3.1	3.0	4.0	12.3	8.3	2.1	0.1	1.7	2.5	2.5	0.0	0.0
	5.9	2.0	6.9	7.6	6.6	0.5	0.1	0.3	0.0	2.5	0.0	0.0
S32-3 S111-28	3.3	2.0	6.8	7.4	7.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0
	3.3	2.0	4.0	5.2	3.3	1.6	0.0	0.2	17.5	0.0	0.0	0.0
Salem W1242	2.5	2.0	5.0	7.0	3.9	1.7	0.2	1.1	0.0	2.5	0.0	0.0
	4.6	3.0	4.0	11.1	7.8	1.4	1.9	0.0	27.5	0.0	0.0	0.0
W1313 Yukon Gold	5.3	2.0	4.3	5.6	3.4	1.5	0.3	0.4	0.0	0.0	0.0	0.0
	1.1	3.0	7.6	7.3	5.7	1.4	0.0	0.2	5.0	0.0	0.0	5.0

¹See the standard NE184 rating system for a key to these ratings, in the appendix to this report.

²Based on a 10-tuber sample from each replication. The tubers were taken from size categories 3 and 4.

Upstate New York Table 5. Yield, marketable yield, grade size distribution, tuber number per foot and weight, and specific gravity for the medium-late maturity trial grown at Freeville, New York - 2000.

Variety/Clone	Total Yield cwt/A	Mkt. Yield		Size Distrib. by Class ¹ (% of total yield)					Size Distrib. (%)		Mean Tuber #/ft	Tuber wt(oz)	Spec. Grav.
		cwt/A	std	1	2	3	4	5	1 7/8 to 4 in.	2 1/2 to 4 in.			
AF1615-1	425	356	91	4	38	51	7	0	96	58	8.2	5.4	84
AF1758-7	461	413	106	2	31	52	13	2	95	64	7.7	6.2	69
Atlantic (std)	462	391	100	3	40	47	8	3	95	54	8.9	5.4	96
Castile	475	371	95	3	39	40	14	4	93	54	8.8	5.6	86
Kanona	398	351	90	3	32	59	5	1	96	64	7.3	5.6	82
Katahdin	465	390	100	3	34	49	11	4	94	60	8.3	5.8	81
Kennebec	484	332	85	2	27	47	16	8	90	63	7.5	6.8	83
Keuka Gold	572	512	131	3	41	45	11	1	96	55	11.0	5.4	80
NY112	478	393	100	2	28	49	14	6	92	64	7.9	6.3	88
NY115	315	275	70	4	38	44	12	3	93	55	6.0	5.4	81
NY120	425	398	102	2	32	55	10	2	96	65	7.1	6.2	93
NY121	407	339	87	11	68	19	2	0	89	21	11.6	3.6	84
NY123	447	383	98	4	40	50	6	0	96	56	8.8	5.3	90
NY124 (S14-2)	386	346	88	2	39	44	13	2	96	57	7.1	5.7	89
NYE11-45	474	423	108	3	43	45	7	1	96	53	9.2	5.3	77
Pike	410	360	92	9	69	20	3	0	91	23	10.7	4.0	97
Reba	436	394	101	3	47	40	9	1	95	48	8.6	5.3	81
Snowden	454	405	103	7	64	26	2	0	93	29	11.7	4.0	95
Waller-Duncan													
LSD (k=100)	41	40									1.0	0.6	3
C.V. (%)	(7)	(8)									(9)	(8)	(3)

¹Size classes: 1 = 1" to 1 7/8", 2 = 1 7/8" to 2 1/2", 3 = 2 1/2" to 3 1/4", 4 = 3 1/4" to 4", 5 = over 4"

Plant Date: May 4 Maturity Ratings: Aug 29 Vine-Kill Date: Aug 30 Harvest Date: Sep 8

Upstate New York Table 6. Plant maturity, tuber shape and appearance, and external and internal tuber defects for the medium-late maturity trial grown at Freeville, New York - 2000.

Variety/Clone	Plant ¹		External Tuber Defects (%)					Int. Tuber Defects (%) ²			
	Mat. At Vinekill	Tuber Data ¹ Shape	Tuber Appear.	Total	Sun- Green	Mis- shapen	Growth Cracks	Rot	Holl. Heart	Vasc. Disc.	Int. Nec.
AF1615-1	4.1	3.0	3.9	12.8	7.8	2.9	0.3	1.8	0.0	0.0	0.0
AF1758-7	5.6	4.0	4.6	5.6	1.5	3.7	0.1	0.3	0.0	2.5	0.0
Atlantic (std)	3.6	1.0	6.6	10.3	6.7	2.4	0.5	0.7	2.5	0.0	0.0
Castile	4.0	6.0	5.0	14.8	6.9	4.0	1.3	2.7	0.0	0.0	0.0
Kanona	2.6	3.0	5.0	8.0	6.2	0.9	0.7	0.2	2.5	0.0	0.0
Katahdin	4.0	2.0	5.0	9.1	7.2	0.8	0.1	1.0	2.5	0.0	0.0
Kennebec	1.9	5.0	4.0	21.3	15.3	3.8	2.0	0.2	0.0	2.5	2.5
Keuka Gold	3.9	1.0	7.0	6.7	3.9	1.1	0.0	1.7	0.0	0.0	0.0
NY112	5.5	3.0	5.8	9.0	7.9	0.8	0.2	0.1	0.0	0.0	0.0
NY115	2.3	3.0	8.0	5.8	4.9	0.3	0.3	0.3	0.0	0.0	0.0
NY120	3.8	1.0	5.3	2.6	1.3	1.0	0.0	0.3	0.0	10.0	0.0
NY121	1.0	1.0	6.3	5.7	3.0	2.6	0.0	0.1	5.0	0.0	0.0
NY123	1.0	2.0	5.8	9.7	2.9	5.2	0.0	1.6	0.0	0.0	2.5
NY124 (S14-2)	4.3	2.0	4.0	6.7	4.5	2.1	0.0	0.1	0.0	2.5	0.0
NYE11-45	4.6	2.8	7.9	5.9	3.2	1.6	0.0	1.1	0.0	2.5	0.0
Pike	2.8	3.0	6.9	4.9	3.6	0.9	0.2	0.1	0.0	0.0	2.5
Reba	4.3	2.0	4.0	6.7	4.5	2.1	0.0	0.1	0.0	2.5	0.0
Snowden	2.8	1.0	5.3	3.3	1.6	1.7	0.0	0.0	0.0	0.0	0.0

¹See the standard NE184 rating system for a key to these ratings, in the appendix to this report.

²Based on a 10-tuber sample from each replication. The tubers were taken from size categories 3 and 4.

Upstate New York Table 7. Yield, marketable yield, grade size distribution, tuber number per foot and weight, and specific gravity for the late maturity trial grown at Freeville, New York - 2000.

Variety/Clone	Total Yield		Mkt. Yield		Size Distrib. by Class ¹					Size Distrib. (%)			Mean Tuber wt(oz)	Spec. Grav.
	cwt/A	cwt/A	% of std	(% of total yield)					1 7/8 to 4 in.	2 1/2 to 4 in.	#/ft			
				1	2	3	4	5						
AF1775-2	542	393	97	1	25	46	19	9	90	65	7.7	7.3	88	
Allegany	505	386	95	1	20	44	23	11	88	67	6.8	7.7	82	
Atlantic (std)	499	405	100	3	32	44	16	5	92	60	8.8	5.9	92	
B0178-34	543	466	115	3	29	47	15	6	92	62	9.1	6.2	96	
B0564-8	467	427	105	6	55	37	1	0	94	38	10.6	4.6	81	
B1425-9	597	495	122	5	40	47	6	1	94	53	11.8	5.3	99	
B1870-17	517	450	111	4	44	41	9	3	94	50	10.6	5.1	74	
B1873-6	465	422	104	7	67	25	2	0	93	27	11.8	4.1	89	
Elba	588	433	107	2	26	42	18	11	87	61	9.1	6.8	81	
Genesee	411	352	87	2	26	45	22	5	93	67	6.7	6.4	71	
Katahdin	476	408	101	3	35	44	16	3	94	59	7.9	6.2	74	
Sandy	587	514	127	5	58	33	3	0	94	36	13.4	4.5	94	
Waller-Duncan														
LSD (k=100)	52	48									1.0	0.6	3	
C.V. (%)	(7)	(8)									(8)	(8)	(3)	

¹Size classes: 1 = 1" to 1 7/8", 2 = 1 7/8" to 2 1/2", 3 = 2 1/2" to 3 1/4", 4 = 3 1/4" to 4", 5 = over 4"

Plant Date: May 5 Maturity Ratings: Sep 5 Vine-Kill Date: Sep 6 Harvest Date: Sep 14

Upstate New York Table 8. Plant maturity, tuber shape and appearance, and external and internal tuber defects for the late maturity trial grown at Freeville, New York - 2000.

Variety/Clone	Plant ¹ Mat. At Vinekill	Tuber Data ¹		External Tuber Defects (%)				Int. Tuber Defects (%) ²			
		Shape		Total	Sun- Green	Mis- shapen	Growth Cracks	Rot	Holl. Heart	Vasc. Disc.	Int. Nec.
		Appear.	Appear.								
AF1775-2	5.8	3.0	6.3	16.6	13.3	2.7	0.3	0.2	17.5	2.5	0.0
Allegany	4.9	2.0	5.8	10.9	8.4	1.0	1.4	0.0	0.0	0.0	0.0
Atlantic (std)	3.1	1.0	7.0	11.2	7.2	1.8	0.7	1.4	2.5	2.5	0.0
B0178-34	2.6	3.0	5.0	5.9	4.0	0.8	0.9	0.2	0.0	7.5	10.0
B0564-8	1.3	2.0	6.9	2.3	2.0	0.1	0.0	0.1	0.0	0.0	0.0
B1425-9	2.9	2.0	5.0	10.8	9.2	1.6	0.0	0.0	0.0	0.0	5.0
B1870-17	2.0	1.0	6.8	6.3	1.9	1.6	2.7	0.2	0.0	0.0	0.0
B1873-6	1.8	1.0	6.6	2.7	1.6	1.1	0.0	0.0	0.0	7.5	2.5
Elba	7.0	1.0	5.8	13.6	9.8	3.5	0.3	0.1	0.0	2.5	0.0
Genesee	5.0	3.0	7.8	7.6	6.2	1.2	0.0	0.2	0.0	0.0	0.0
Katahdin	3.4	3.0	4.9	8.2	7.4	0.8	0.0	0.0	2.5	2.5	0.0
Sandy	4.1	2.0	5.5	6.7	3.6	2.6	0.6	0.0	0.0	0.0	0.0

¹See the standard NE184 rating system for a key to these ratings, in the appendix to this report.

²Based on a 10-tuber sample from each replication. The tubers were taken from size categories 3 and 4.

Upstate New York Table 9. Yield, marketable yield, grade size distribution, tuber number per foot and weight, and specific gravity for the Cornell advanced clone trial grown at Freeville, New York - 2000.

Variety/Clone	Total Yield		Size Distrib. by Class ¹					Size Distrib. (%)			Mean Tuber		Spec. Grav.
	cwt/A	Mkt. Yield % of std	(% of total yield)					1 7/8 to 4 in.	2 1/2 to 4 in.	#/ft	wt(oz)		
			1	2	3	4	5						
Atlantic (std)	528	382	100	3	33	46	11	7	57	9.0	6.1	95	
T2-2	512	315	82	2	20	40	28	11	68	7.0	7.6	88	
T3-5	563	352	92	3	17	42	24	14	66	7.4	7.9	92	
T3-9	505	431	113	4	33	51	12	1	63	9.0	5.8	86	
T4-2	469	382	100	5	50	38	6	1	44	10.3	4.8	89	
T20-15	505	447	117	5	50	38	7	0	45	11.1	4.7	80	
T27-21	564	466	122	6	55	35	3	0	39	13.0	4.5	78	
T28-1	578	416	109	5	31	43	14	7	57	10.4	5.8	74	
T35-19	506	406	106	12	69	18	1	0	19	15.4	3.4	89	
T35-34	531	422	111	8	57	31	4	0	35	13.4	4.1	87	
T35-39	425	346	91	6	49	38	5	1	43	9.4	4.7	99	
T37-3	510	436	114	9	61	29	1	0	31	13.5	3.9	83	
Waller-Duncan													
LSD (k=100)	51	50								1.0	0.5	3	
C.V. (%)	(7)	(9)								(7)	(8)	(2)	

¹Size classes: 1 = 1" to 1 7/8", 2 = 1 7/8" to 2 1/2", 3 = 2 1/2" to 3 1/4", 4 = 3 1/4" to 4", 5 = over 4"

Upstate New York Table 10. Plant maturity, tuber shape and appearance, and external and internal tuber defects for the Cornell advanced clone trial grown at Freeville, New York - 2000.

Variety/Clone	Plant ¹		External Tuber Defects (%)					Int. Tuber Defects (%) ²			
	Mat. At Vinekill	Tuber Data ¹ Shape Appear.	Total	Sun-Green	Mis-shapen	Growth Cracks	Rot	Holl. Heart	Vasc. Disc.	Int. Nec.	
Atlantic (std)	3.1	1.0	6.5	17.1	10.5	2.0	0.7	3.9	2.5	2.5	0.0
T2-2	2.4	3.0	5.0	26.0	12.8	4.1	0.1	9.0	0.0	0.0	2.5
T3-5	3.4	3.0	6.3	20.7	16.7	1.7	0.2	2.1	5.0	0.0	0.0
T3-9	2.0	3.0	7.3	10.2	7.0	1.4	0.1	1.7	2.5	0.0	2.5
T4-2	1.9	2.0	6.0	12.2	8.6	2.7	0.3	0.7	25.0	0.0	0.0
T20-15	1.6	2.0	6.3	6.2	3.1	1.5	0.4	1.2	0.0	0.0	5.0
T27-21	1.8	2.0	7.5	11.4	7.5	1.5	1.2	1.2	0.0	0.0	0.0
T28-1	1.1	2.0	6.8	15.9	13.4	1.6	0.3	0.6	0.0	0.0	0.0
T35-19	2.4	1.0	5.3	7.3	3.5	2.3	0.0	1.5	5.0	0.0	0.0
T35-34	2.9	2.0	6.8	12.4	4.3	1.7	0.0	6.4	0.0	0.0	0.0
T35-39	4.0	1.0	6.4	10.6	4.3	4.6	0.1	1.7	0.0	0.0	0.0
T37-3	1.3	2.0	6.5	6.1	2.5	1.5	0.1	2.0	0.0	0.0	0.0

¹See the standard NE184 rating system for a key to these ratings, in the appendix to this report.

²Based on a 10-tuber sample from each replication. The tubers were taken from size categories 3 and 4.

Upstate New York Table 11. Yield, marketable yield, grade size distribution, tuber number per foot and weight, and specific gravity for the red-skinned 2-rep observation trial grown at Freeville, N.Y. - 2000.

Variety/Clone	Total Yield cwt/A	Mkt. Yield		Size Distrib. by Class ¹					Size Distrib. (%)		Mean Tuber		Spec. Grav.
		cwt/A	% of std	(% of total yield)					1 7/8 to 4 in.	2 1/2 to 4 in.	#/ft	Tuber wt(oz)	
				1	2	3	4	5					
B1495-6	210	163	40	17	70	13	0	0	83	13	6.8	3.2	82
B1521-2	440	365	91	12	59	29	1	0	88	29	12.7	3.6	84
B1523-4	414	346	86	9	51	33	4	2	88	37	10.5	4.1	84
B1529-1	342	285	71	7	50	37	5	0	93	42	8.6	4.2	85
B1758-4	427	365	91	12	61	26	1	0	88	27	12.9	3.4	81
B1763-4	301	265	66	7	69	21	1	2	90	22	7.8	4.0	81
Cherry Red	419	392	98	5	43	46	6	0	95	51	8.3	5.2	87
Chieftain (std)	459	402	100	5	40	46	5	3	92	51	9.6	5.0	75
C086218-2	396	310	77	14	60	27	0	0	86	27	11.2	3.7	73
Dark Red Norland	351	309	77	9	64	24	2	0	91	26	8.0	4.6	73
NY118	433	366	91	9	52	37	2	0	91	39	10.6	4.2	70
Redsen *	309	266	66	7	50	41	2	0	93	43	7.6	4.2	73
Rideau	377	293	73	7	42	46	4	1	92	50	8.4	4.7	84
T10-2	394	338	84	10	62	26	3	0	90	29	10.4	3.9	71
T11-2	569	512	127	6	55	38	2	0	94	39	12.0	4.9	79
T15-1	424	331	82	19	72	8	1	0	81	9	15.3	2.9	80
T15-3	366	300	75	16	79	5	0	0	84	5	12.6	3.0	70
U71-5 *	252	215	54	5	47	38	7	3	92	44	6.0	4.4	76
U71-6 *	431	398	99	4	28	53	13	2	94	66	7.2	6.3	82
U72-4 *	447	354	88	4	27	51	8	11	85	58	6.9	6.7	81
Waller-Duncan													
LSD (k=100)	99	85									1.4	1.6	5
C.V. (%)	(11)	(11)									(13)	(13)	(3)

¹Size classes: 1 = 1" to 1 7/8", 2 = 1 7/8" to 2 1/2", 3 = 2 1/2" to 3 1/4", 4 = 3 1/4" to 4", 5 = over 4"
 * The four cultivars with an asterisk by them were not replicated.

Plant Date: May 4 Maturity Ratings: Aug 29 Vine-Kill Date: Aug 30 Harvest Date: Sep 5

Upstate New York Table 12. Plant maturity, tuber shape and appearance, and external and internal tuber defects for the red-skinned 2-rep observational trial grown at Freeville, New York - 2000.

Variety/Clone	Plant ¹ Mat. At Vinekill	Tuber Data ¹ Shape	External Tuber Defects (%)					Int. Tuber Defects (%)			
			Total	Sun- Green	Mis- shapen	Growth Cracks	Rot	Holl. Heart	Vasc. Disc.	Int. Nec.	
B1495-6	1.3	4.0	6.3	5.5	1.1	3.1	1.3	0.0	0.0	0.0	0.0
B1521-2	3.5	2.0	5.5	5.0	1.3	0.4	2.9	0.3	0.0	0.0	0.0
B1523-4	2.8	2.0	7.0	5.3	0.2	4.9	0.2	0.0	0.0	0.0	0.0
B1529-1	5.3	4.0	5.0	9.4	0.7	2.5	6.0	0.2	0.0	5.0	0.0
B1758-4	1.5	2.0	7.5	3.0	0.7	1.1	1.1	0.2	0.0	0.0	5.0
B1763-4	1.8	2.5	6.0	1.9	0.2	1.7	0.0	0.0	0.0	0.0	0.0
Cherry Red	1.8	2.0	6.0	1.4	0.2	0.5	0.8	0.0	10.0	0.0	0.0
Chieftain (std)	2.0	1.5	6.8	4.0	1.2	1.7	1.0	0.0	0.0	0.0	0.0
C086218-2	4.5	1.0	6.0	7.9	2.9	4.7	0.3	0.0	0.0	0.0	0.0
Dark Red Norland	1.3	5.0	5.0	2.9	1.2	0.3	1.4	0.0	0.0	0.0	0.0
NY118	5.3	2.5	7.3	6.4	0.5	5.0	0.9	0.0	0.0	0.0	0.0
Redsen *	1.0	1.0	7.0	7.0	2.4	2.1	2.5	0.0	0.0	0.0	0.0
Rideau	5.8	2.0	6.0	14.0	4.1	4.2	5.7	0.0	0.0	5.0	0.0
T10-2	1.3	1.0	6.5	4.1	0.2	3.6	0.3	0.0	0.0	5.0	5.0
T11-2	5.3	2.0	7.0	4.2	0.2	4.0	0.0	0.0	0.0	0.0	0.0
T15-1	2.3	1.0	6.0	2.5	0.2	2.2	0.0	0.0	0.0	0.0	0.0
T15-3	1.0	2.0	5.5	1.8	0.1	1.1	0.3	0.2	0.0	0.0	0.0
U71-5 *	4.0	2.0	7.0	6.2	0.0	4.2	2.0	0.0	0.0	0.0	10.0
U71-6 *	7.0	1.0	7.0	1.8	0.8	1.0	0.0	0.0	0.0	0.0	0.0
U72-4 *	5.0	2.0	5.0	5.9	0.1	5.5	0.0	0.3	0.0	0.0	0.0

¹See the standard NE184 rating system for a key to these ratings, in the appendix to this report.

²Based on a 10-tuber sample from each replication. The tubers were taken from size categories 3 and 4.

* The four cultivars with an asterisk by them were not replicated.

Upstate New York Table 13. Yield, marketable yield, grade size distribution, tuber number per foot and weight, and specific gravity for the russet/long tuber variety trial grown at Freeville, New York - 2000.

Variety/Clone	Total Yield		Size Distrib. by Class ¹					Size Distrib. (%)					Mean Tuber		Spec. Grav.
	cwt/A	Mkt. Yield % of std	Size Distrib. (% of total yield)					4 to over					#/ft	wt(oz)	
			1	2	3	4	5	12 oz	8 oz	12 oz					
Amey	424	339	99	8	48	31	9	3	80	44	12	8.1	5.5	89	
A8495-1	413	297	87	14	52	23	7	3	76	33	10	7.7	5.6	87	
A087277-6	508	380	112	8	39	34	15	4	73	53	19	7.7	6.8	93	
AF1808-18	423	213	62	9	31	33	18	9	64	60	27	6.2	7.1	84	
Russet Bake King	411	347	102	13	58	25	4	0	83	29	4	8.0	5.3	90	
Russet Burbank (std)	531	341	100	22	56	18	3	1	74	22	4	11.7	4.7	90	
Rus. Norkotah #3117	427	313	92	20	50	24	7	0	73	31	7	8.9	5.0	74	
Russet Norkotah #3	479	315	92	10	32	29	19	10	61	58	29	7.0	7.1	84	
Russet Norkotah #8	471	351	103	9	33	36	15	8	69	58	23	7.0	7.0	77	
Shepody	458	287	84	8	35	32	14	11	66	57	25	6.9	7.0	87	
Waller-Duncan															
LSD (k=100)	56	44										0.9	0.7	3	
C.V. (%)	(8)	(10)										(14)	(11)	(3)	

¹Size classes: 1 = under 4 oz, 2 = 4 to 8 oz, 3 = 8 to 12 oz, 4 = 12 to 16 oz, 5 = over 16 oz

Plant Date: May 4 Maturity Ratings: Sep 5 Vine-Kill Date: Sep 6 Harvest Date: Sep 18

Upstate New York Table 14. Plant maturity, tuber shape and appearance, and external and internal tuber defects for the russet/long tuber variety trial grown at Freeville, New York - 2000.

Variety/Clone	Plant ¹ Mat. At Vinekill	Tuber Data ¹		External Tuber Defects (%)					Int. Tuber Defects (%) ²		
		Shape	Appear.	Total	Sun- Green	Mis- shapen	Growth Cracks	Rot	Holl. Heart	Vasc. Disc.	Int. Nec.
Amey	3.4	6.0	6.9	9.1	4.3	3.2	0.4	1.2	0.0	0.0	0.0
A8495-1	2.9	7.0	4.5	10.9	5.9	4.8	0.0	0.2	2.5	0.0	0.0
A087277-6	3.5	6.0	4.6	12.6	3.6	7.0	0.6	1.4	2.5	0.0	0.0
AF1808-18	1.9	7.0	3.9	31.1	27.3	2.9	0.6	0.3	0.0	0.0	0.0
Russet Bake King	2.0	3.0	5.3	2.2	0.3	1.5	0.3	0.1	0.0	0.0	0.0
Russet Burbank	4.4	7.3	4.3	12.3	2.8	8.5	0.3	0.7	5.0	2.5	0.0
Rus. Norkotah #311	1.3	7.0	6.4	7.0	3.7	3.0	0.3	0.0	2.5	5.0	0.0
Russet Norkotah #3	4.4	7.0	5.3	14.4	4.8	8.7	0.2	0.6	2.5	0.0	0.0
Russet Norkotah #8	2.0	7.0	6.9	8.6	3.5	4.1	0.1	1.0	0.0	0.0	0.0
Shepody	2.3	8.0	4.0	17.7	6.6	10.5	0.3	0.4	0.0	0.0	0.0

¹See the standard NE184 rating system for a key to these ratings, in the appendix to this report.

²Based on a 10-tuber sample from each replication. The tubers were taken from size categories 3 and 4.

Upstate New York Table 15. Yield, marketable yield, grade size distribution, tuber number per foot and weight, percentage of external and internal defects, and specific gravity for the Wayne county muck soil red/purple-skinned variety trial grown near Savannah, New York - 2000.

Variety/Clone	Total Yield cwt/A	Mkt. Yield		Size Distrib. ¹			Mean Tuber		Pct. External				Pct. Internal				Spec. Grav.
		% of		(% of tot. yld.			wt(oz)		Tuber Defects				Tuber Defects				
		cwt/A	std	1	2	3	#/ft	wt(oz)	SUN	KNB	GC	ROT	HH	VD	NEC		
B1491-5	337	147	57	41	59	0	12.0	2.9	5	7	3	0	0	0	0	71	
B1495-6	215	115	44	34	66	0	8.0	2.8	11	0	0	1	0	0	0	66	
B1521-2	425	323	125	16	84	0	11.7	3.8	4	1	1	2	5	5	0	73	
B1523-4	370	295	114	15	85	0	10.1	3.8	4	1	0	1	0	0	0	70	
B1529-1 (purple)	274	190	73	21	79	0	8.1	3.5	0	0	10	0	0	20	0	73	
B1758-4	418	259	100	20	80	0	12.0	3.6	12	3	0	1	5	5	0	73	
B1763-4 (purple)	346	237	92	24	76	0	10.3	3.5	4	2	1	1	0	15	0	72	
B1768-20	318	198	77	32	68	0	11.8	2.8	2	1	0	1	0	20	0	69	
B1816-5 (purple)	410	286	110	25	75	0	12.3	3.5	2	2	1	0	30	0	0	74	
B1952-2 (purple)	387	257	99	20	80	0	12.3	3.3	5	3	5	2	0	0	0	79	
Cherry Red	397	318	123	12	88	0	9.7	4.3	5	1	1	0	0	0	0	74	
Chieftain (std)	356	259	100	15	85	0	10.4	3.6	7	3	1	1	0	0	0	67	
C086218-2	352	227	88	22	77	1	9.9	3.7	6	4	2	0	0	5	0	74	
Dark Red Norland	306	173	67	29	71	0	10.2	3.1	6	2	5	0	0	0	0	58	

(Continued on Next Page)

Upstate New York Table 15. - (Cont.) - Yield, marketable yield, grade size distribution, tuber number per foot and weight, percentage of external and internal defects, and specific gravity for the Wayne County muck soil red/purple-skinned trial grown near Savannah, New York - 2000.

Variety/Clone	Total Yield cwt/A	Mkt. Yield		Size Distrib. ¹			Mean Tuber		Pct. External Tuber Defects				Pct. Internal Tuber Defects			Spec. Grav.
		cwt/A	% of std	(% of tot. yld.			#/ft	wt(oz)	Tuber Defects				Tuber Defects			
				1	2	3			SUN	KNB	GC	ROT	HH	VD	NEC	
NY118	379	270	104	13	87	0	9.6	4.1	7	6	3	1	0	0	0	67
Purple 5 (purple)	288	165	64	24	76	0	8.2	3.6	10	4	2	3	0	10	0	65
Redsen	266	126	49	36	64	0	9.5	2.9	5	10	1	0	0	10	0	61
T10-2	298	155	60	38	62	0	11.3	2.7	1	9	0	0	0	0	0	65
T11-2	471	352	136	21	79	0	14.1	3.5	1	0	1	2	0	0	0	65
T15-1	392	227	88	36	64	0	14.9	2.7	2	2	1	0	0	0	0	71
T15-3	364	190	74	46	54	0	15.8	2.4	1	1	0	0	0	0	0	63
U71-5	258	189	73	16	84	0	7.0	3.9	3	0	6	2	0	0	0	65
U71-6	401	278	108	16	84	0	10.3	4.0	10	0	4	0	0	0	0	70
U72-4	343	232	89	23	77	0	9.7	3.7	5	4	1	0	0	0	0	68

¹Size classes: 1 = under 2", 2 = 2" to 4", 3 = over 4"

NOTE: This trial was not replicated, except 8 cultivars were replicated twice

Plant Date: May 31

Vinekill Date: September 10

Fertilizer: 800 lb/A 9.9N-9.6P₂O₅-34K₂O-2.2Mg-0.56Mn banded at planting.

Sidedressed 500 lb/A 21.8-0-21.3

Vinekill: A single application of Diquat 1 pt/A.

Irrigation: None.

Harvest Date: October 2

Upstate New York Table 16. Yield, marketable yield, grade size distribution, tuber number per foot and weight, percentage of external and internal defects, and specific gravity for the Wayne county muck soil white-skinned variety trial grown near Savannah, New York - 2000.

Variety/Clone	Total Yield cwt/A	Mkt. Yield cwt/A	Yield % of std	Size Distrib. ¹ (% of tot. yld.)			Mean Tuber		Pct. External Tuber Defects				Pct. Internal Tuber Defects				Spec. Grav.
				1	2	3	#/ft	wt(oz)	SUN	KNB	GC	ROT	HH	VD	NEC		
				1	2	3											
Amadine	306	127	43	28	72	0	7.9	4.0	27	3	0	0	0	0	0	0	66
Atlantic	426	291	98	10	87	4	9.9	4.5	12	4	2	1	20	0	0	0	87
Eva	442	307	104	12	88	0	8.9	5.2	17	1	0	0	0	0	0	0	80
Katahdin	367	147	50	15	82	3	7.0	5.4	30	2	0	9	10	10	0	0	73
Keuka Gold	562	415	140	11	87	2	13.3	4.4	10	0	0	2	5	5	0	0	73
Marine	289	131	44	16	83	1	6.3	4.7	24	9	1	3	0	5	0	0	58
NY121	287	150	50	38	62	0	10.6	2.8	9	1	0	0	0	0	0	0	75
NY123	437	293	99	19	81	0	12.7	3.6	8	4	0	1	0	10	0	0	81
NY125 (S28-2)	390	251	84	23	77	0	12.3	3.3	12	2	0	0	0	0	0	0	72
NYE11-45	476	403	136	9	90	1	9.9	5.0	4	1	1	0	0	0	0	0	65
Reba	394	267	90	15	81	4	8.8	4.6	12	1	0	0	0	0	0	0	74
Sandy	523	341	115	19	81	0	10.3	5.3	15	0	0	1	0	10	0	0	90
Superior (std)	382	297	100	12	88	0	9.0	4.4	6	3	0	1	0	0	0	0	73
S32-3	522	278	94	17	79	4	11.0	4.9	17	1	0	7	0	10	0	0	77
T2-2	407	197	66	11	80	9	7.5	5.6	25	5	0	1	0	0	0	0	78
T3-5	420	169	57	7	72	22	6.2	7.1	28	0	1	2	0	0	0	0	76
T4-2	442	286	96	10	90	0	10.7	4.3	8	0	1	17	20	0	0	0	82
T20-15	473	324	109	18	82	0	12.9	3.8	7	6	0	0	20	0	0	0	76
T27-21	573	379	128	19	81	0	15.7	3.8	12	1	0	1	0	0	0	0	75
T28-1	494	293	99	14	86	0	13.0	4.0	21	0	0	6	0	0	0	0	72
T35-19	429	279	94	25	75	0	15.6	2.9	3	0	0	7	0	20	0	0	86

(Continued on Next Page)

Upstate New York Table 16. - (Cont.) - Yield, marketable yield, grade size distribution, tuber number per foot and weight, percentage of external and internal defects, and specific gravity for the Wayne County muck soil white-skinned trial grown near Savannah, New York - 2000.

Variety/Clone	Total Yield cwt/A	Mkt. Yield		Size Distrib. ¹ (% of tot. yld.)			Mean Tuber		Pct. External Tuber Defects				Pct. Internal Tuber Defects			Spec. Grav.
		cwt/A	% of std	1	2	3	#/ft	wt(oz)	SUN	KNB	GC	ROT	HH	VD	NEC	
T35-34	505	347	117	21	79	0	17.0	3.1	9	0	0	1	0	0	0	83
T35-39	431	334	112	16	84	0	12.8	3.5	5	0	0	2	0	10	0	91
U47-12	531	448	151	7	90	3	11.3	4.9	3	2	0	1	0	0	0	73
U62-2	393	237	80	23	77	0	13.3	3.1	11	2	0	4	0	0	0	74
U62-4	426	253	85	25	75	0	13.2	3.4	12	2	0	2	0	0	0	73
U107-16	290	138	47	41	59	0	11.8	2.6	7	2	1	2	0	0	0	70
U109-6	422	312	105	20	80	0	12.4	3.5	5	1	0	0	0	0	0	78
U125-8	449	355	120	17	82	2	10.3	4.5	2	0	0	1	0	0	0	70
U125-43	455	345	116	12	82	5	7.7	6.2	7	0	0	0	0	0	0	69
U126-14	358	309	104	11	89	0	8.8	4.2	2	0	1	1	10	0	0	80
U127-7	355	214	72	32	68	0	12.0	3.1	6	2	0	0	0	0	0	83
U128-8	531	429	144	14	86	0	12.3	4.5	6	0	0	0	10	0	0	79
Yukon Gold	357	257	86	8	87	4	7.3	5.1	8	3	0	4	0	0	0	72

¹Size classes: 1 = under 2", 2 = 2" to 4", 3 = over 4"

NOTE: This trial was not replicated, except 11 cultivars were replicated twice

Plant Date: May 31

Vinekill Date: September 10

Harvest Date: October 2

Fertilizer: 800 lb/A 9.9N-9.6P₂O₅-34K₂O-2.2Mg-0.56Mn banded at planting.

Sidedressed 500 lb/A 21.8-0-21.3

Vinekill: A single application of Diquat 1 pt/A.

Irrigation: None.

Upstate New York Table 17. Yield, marketable yield, grade size distribution, tuber number per foot and weight, percentage of external and internal defects, and specific gravity for the Steuben County mineral soil trial grown near Arkport, New York - 2000.

Variety/Clone	Total Yield cwt/A	Mkt. Yield		Size Distrib. ¹			Mean Tuber		Pct. External				Pct. Internal				Spec Grav
		cwt/A	% of std	(% of tot. yld.)			#/ft	wt(oz)	Tuber Defects				Tuber Defects				
				1	2	3			SUN	KNB	GC	ROT	HH	VD	NEC		
Atlantic (std)	491	382	100	5	89	6	8.8	6.2	8	3	1	0	0	20	0	93	
B0178-34	460	383	100	3	91	6	8.0	6.4	6	1	1	0	0	40	0	94	
Kanona	419	247	65	2	71	26	5.5	8.4	12	0	0	0	0	10	0	78	
NY112	489	356	93	3	76	21	7.0	7.7	3	0	0	0	0	5	0	82	
NY115	349	234	61	4	81	15	4.8	8.0	13	1	0	0	0	10	0	84	
NY120	483	388	102	2	83	16	6.6	8.1	2	0	0	0	0	0	15	0	88
NY124 (S14-2)	454	343	90	4	81	15	7.5	6.6	5	1	0	0	0	5	10	0	85
Pike	434	370	97	8	90	2	9.5	5.0	3	1	0	0	0	0	5	0	95
Reba	457	332	87	3	84	13	8.8	5.8	10	0	1	0	0	0	5	0	74
Snowden	474	432	113	6	92	1	11.0	4.8	1	1	0	0	0	5	15	0	96
S111-28	428	389	102	4	91	4	10.4	4.5	1	0	0	0	0	10	10	0	91
T2-2	484	330	86	2	74	23	7.6	7.1	5	1	1	0	0	0	0	0	83
T3-5	555	235	62	3	64	33	6.9	8.8	22	0	0	0	0	15	0	0	81

¹Size classes: 1 = under 2", 2 = 2" to 4", 3 = over 4"

NOTE: This trial had two replications, except there was only one plot of B0178-34 and S111-28.

Plant Date: May 30

Vinekill Dates: September 15, 20, 25

Harvest Date: October 10

Fertilizer: 1500 lb/A 8-16-8 at planting. Sidedressed 100 lb/A 32-0-0.

Vinekill: 3 applications of Diquat 1 pt/A.

Irrigation: None

Upstate New York Table 18. Yield, marketable yield, grade size distribution, tuber number per foot and weight, percentage of external and internal defects, and specific gravity for the Wyoming County mineral soil trial grown near Castile, New York - 2000.

Variety/Clone	Total Yield		Size Distrib. ¹			Mean Tuber			Pct. External				Pct. Internal				Spec. Grav.
	cwt/A	std	(% of tot. yld.)			wt(oz)			Tuber Defects				Tuber Defects				
			1	2	3	#/ft	wt(oz)	SUN	KNB	GC	ROT	HH	VD	NEC			
Atlantic (std)	416	100	7	92	1	10.1	4.5	3	1	1	0	5	5	0	98		
B0178-34	376	94	4	93	2	7.8	5.3	1	0	1	0	0	40	0	96		
Kanona	376	83	4	90	5	5.7	7.2	8	2	0	0	0	30	0	84		
NY112	471	115	4	89	7	7.5	7.0	1	0	0	0	10	0	0	84		
NY115	252	60	4	91	5	4.5	6.2	3	2	0	0	0	5	0	86		
NY120	388	101	3	96	1	6.9	6.2	1	1	0	0	0	30	0	92		
NY124 (S14-2)	326	80	5	94	1	6.7	5.4	3	2	0	0	0	50	0	85		
Pike	308	71	15	85	0	9.0	3.8	1	1	0	0	0	0	0	95		
Reba	328	80	8	90	2	7.0	5.2	1	0	0	0	0	5	0	80		
Snowden	455	110	9	91	0	11.6	4.3	2	1	0	0	0	40	0	97		
S111-28	351	88	7	93	0	5.8	6.7	0	0	1	0	0	0	0	92		
T2-2	350	85	4	92	5	5.9	6.5	2	2	0	0	0	0	0	88		
T3-5	459	95	3	88	9	6.4	7.9	12	1	0	0	0	0	0	84		

¹Size classes: 1 = under 2", 2 = 2" to 4", 3 = over 4"

NOTE: This trial had two replications, except there was only one plot of B0178-34 and S111-28.

Plant Date: June 1

Vinekill Date: September 24

Harvest Date: October 19

Fertilizer: Broadcast 650 lb/A 12-0-31-2.2Mg-0.7B-8.6S. Banded 100 gal/A 7.5-22-7-.012Mg-0.03B-0.12Zn.

Vinekill: 1 application of Diquat 1 pt/A.

Irrigation: One time, minimum of 1".

Upstate New York Table 19. 2000 Potato Variety Trials¹ - Chip Color Agtron Readings²

Variety/Clone	Field	Freeville ³										Upstate Counties ³			
		Early		Medium		Med-Late		Late		CU Clone		Steuben		Wyoming	
		45		40		45		40		45		45		45	
		45		40		45		40		45		45		45	
Amandine	55.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Andover	65.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Atlantic	--	54.5	54	55.2	54.3	62.3	48.2	60.2	53.9	61.4	49.8	63.4	58.5	55.6	57.8
Eramosa	52.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eva	--	54.4	48.5	--	--	--	--	--	--	--	--	--	--	--	--
Kanona	--	--	--	59.2	48.5	--	--	--	--	60.3	47.8	61.5	52.3	58	60.1
Kennebec	44.6	--	--	--	41.2	--	--	--	--	--	--	--	--	--	--
Marine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Monana	--	55.2	51.7	--	--	--	--	--	--	--	--	--	--	--	--
Pike	--	--	--	61.9	54.5	--	--	--	--	62.5	50.8	62.4	59.1	59.1	57.7
Reba	--	--	--	59.3	49.2	--	--	--	--	54.7	50.2	65.3	53.2	57.7	59.8
Sandy	--	--	--	--	--	62.8	48.7	--	--	--	--	--	--	--	--
Sante	58.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Snowden	--	--	--	63.1	63.4	--	--	--	--	62.6	58.2	62.5	61.7	56.9	61.3
Superior	58.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AF1565-12	60.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AF1611-9	57.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AF1758-7	--	--	--	32.9	31	--	--	--	--	--	--	--	--	--	--
AF1763-2	53.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AF1775-2	--	--	--	--	--	49.5	31	--	--	--	--	--	--	--	--
AF1921-9	60.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AF1938-3	63.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--

(Continued on Next Page)

Update New York Table 19. 2000 Potato Variety Trials¹ (CONT.) - Chip Color Agron Readings²

Variety/Clone	Field	Freeville ³										Upstate Counties ³					
		Early		Medium		Med-Late		Late		CU Clone		Steuben		Wyoming		Steuben	
		45	40	45	40	45	40	45	40	45	40	45	40	45	40	45	40
B0178-34	--	--	--	--	--	--	--	63.3	56	--	--	66.2	55.8	61.1	63.2	63.4	62.5
B0564-8	--	--	--	--	--	--	--	59.2	38.8	--	--	--	--	--	--	--	--
B0564-9	--	47.5	41.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B0766-3	--	58	53.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B1425-9	--	--	--	--	--	--	--	62.1	53.3	--	--	--	--	--	--	--	--
B1870-7	--	--	--	--	--	--	--	44.8	38.6	--	--	--	--	--	--	--	--
B1873-6	--	--	--	--	--	--	--	63.4	48.9	--	--	--	--	--	--	--	--
NY112	--	--	--	59.3	59.9	--	--	--	--	--	--	60.3	57.3	64.9	59.3	59.9	60.3
NY115	--	--	--	64.8	59.6	--	--	--	--	--	--	57.7	57.7	64.5	61.2	61	61.9
NY120	--	--	--	60.2	60.3	--	--	--	--	--	--	58.3	56.4	60.6	55.4	56.4	57.5
NY124 (S14-2)	--	--	--	62.6	50.4	--	--	--	--	--	--	59.1	45.7	60.4	57	60.7	60.2
NY125 (S28-2)	63.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T2-2	--	--	--	--	--	--	--	--	--	55	43.9	53.9	50.8	58.3	48	58.6	59.2
T3-5	--	--	--	--	--	--	--	--	--	63.7	54.9	59	44.7	62.5	57.2	54.8	60.7
T3-9	--	--	--	--	--	--	--	--	--	56.7	56.5	--	--	--	--	--	--
T20-15	--	--	--	--	--	--	--	--	--	51.1	44.7	--	--	--	--	--	--
T28-1	--	--	--	--	--	--	--	--	--	57.2	49.3	--	--	--	--	--	--
T35-19	--	--	--	--	--	--	--	--	--	56.5	47.4	--	--	--	--	--	--
T35-34	--	--	--	--	--	--	--	--	--	58.4	53.5	--	--	--	--	--	--
T35-39	--	--	--	--	--	--	--	--	--	65.6	59.7	--	--	--	--	--	--
T37-3	--	--	--	--	--	--	--	--	--	58.7	55.9	--	--	--	--	--	--
W1242	--	56.8	58.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--
W1313	--	53.1	59.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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³The Early trial at Freeville was chipped out of the field 2 days after harvest. The other Freeville trials and the county trials designated "Cornell" were stored in Cornell facilities at 45°F and 40°F. The "Grower" samples from the counties were stored in the growers' facilities at the temperatures specified. After warm-up at 65°F for two weeks, the 45°F Freeville samples were chipped Jan. 31-Feb. 4, and the county 45°F samples stored at Cornell were chipped February 18-21. After warm-up for three weeks at 65°F, the 40°F Freeville samples were chipped March 6-10. The chamber in which the 40°F county samples were stored overheated, causing those samples to go badly off color. Therefore no data is reported for those samples. The Steuben samples from the grower's storage were stored at 49-53°F and were chipped without warm-up on March 16. The Wyoming samples from the grower's storage were stored at 49°F and were chipped without warm-up on March 28.

Update New York Table 20. 2000 Freeville Trials - After-cooking darkening and sloughing ratings¹

Variety/Clone	Early		Medium		Med-Late		Late		CU Clone		Red/Purp		Rus/FF	
	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG
Allegany	3.1	2.4	...	...	...	...	...	...
Amandine	4.6	4.8	...	...	...	...	...	...	...	...	...	...	...	...
Amey	3.1	1.3
Andover	4.3	3.5	...	...	...	...	...	...	...	...	...	...	...	...
Atlantic	3.9	1.8	3.3	1.3	3.1	1.5	3.5	1.5	...	...	...	...
Castile	4.3	1.9	...	...	...	...	...	...	...	...
Cherry Red	3.1	2.5	...	...
Chieftain	4.7	3.2	...	...
Dark Red Norland	3.3	4.6	...	...
Elba	4.1	2.1	...	...	...	...	...	...
Eramosa	4.2	4.4	...	...	...	...	...	...	...	...	...	...	...	...
Eva	3.3	2.0	...	...	...	...	...	...	...	...	...	...
Genesee	3.3	4.1	...	...	...	...	...	...
Kanona	1.9	3.8	...	...	...	...	...	...	...	...
Katahdin	3.0	3.3	2.3	3.5	...	...	...	...	...	...
Kennebec	3.5	2.1	...	...	...	...	...	...	...	...
Keuka Gold	4.1	3.2	...	...	...	...	...	...	...	...
Marine	2.9	4.3	...	...	...	...	...	...	...	...	...	...	...	...
Monona	4.3	4.9	...	...	...	...	...	...	...	...	...	...
Penta	3.3	1.9	...	...	...	...	...	...	...	...	...	...
Pike	3.7	2.9	...	...	...	...	...	...	...	...

(Continued on Next Page)

Upstate New York Table 20. - (CONT.) - 2000 Freeville Trials - After-cooking darkening and sloughing ratings¹

Variety/Clone	Early		Medium		Med-Late		Late		CU Clone		Red/Purp		Rus/FF	
	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG
Reba	---	---	---	---	3.8	4.6	---	---	---	---	---	---	---	---
Redsen	---	---	---	---	---	---	---	---	---	---	2	2.6	---	---
Rideau	---	---	---	---	---	---	---	---	---	---	3.8	1.5	---	---
Russet Bake King	---	---	---	---	---	---	---	---	---	---	---	---	3.4	1.0
Russett Burbank	---	---	---	---	---	---	---	---	---	---	---	---	4.3	2.3
Russett Norkotah	---	---	---	---	---	---	---	---	---	---	---	---	2.1	3.1
Russett Norkotah-3	---	---	---	---	---	---	---	---	---	---	---	---	2.4	2.0
Russett Norkotah-8	---	---	---	---	---	---	---	---	---	---	---	---	1.9	3.3
Salem	---	---	4.5	2.6	---	---	---	---	---	---	---	---	---	---
Sandy	---	---	---	---	---	---	4.8	1.1	---	---	---	---	---	---
Sante	3.7	4.3	---	---	---	---	---	---	---	---	---	---	---	---
Shepody	---	---	---	---	---	---	---	---	---	---	---	---	4.7	2.5
Snowden	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Superior	4.5	3.2	---	---	3.6	2.4	---	---	---	---	---	---	---	---
Yukon Gold	---	---	4.9	2.2	---	---	---	---	---	---	---	---	---	---
A8495-1	---	---	---	---	---	---	---	---	---	---	---	---	3.6	2.1
AF1565-12	4.1	3.5	---	---	---	---	---	---	---	---	---	---	---	---
AF1615-1	---	---	---	---	4.4	2.6	---	---	---	---	---	---	---	---
AF1758-7	---	---	---	---	4.1	3.8	---	---	---	---	---	---	---	---
AF1763-2	3.9	4.9	---	---	---	---	---	---	---	---	---	---	---	---
AF1775-2	---	---	---	---	---	---	1.5	2.7	---	---	---	---	---	---

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Upstate New York Table 20. - (CONT.) - 2000 Freeville Trials - After-cooking darkening and sloughing ratings¹

Variety/Clone	Early		Medium		Med-Late		Late		CU Clone		Red/Purp		Rus/FF	
	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG
AF1808-18	3.6	4.7
AF1938-3	4.4	3.7	...	...	...	...	...	...	...	...	...	...	...	...
AO87277-6	2.0	1.3
B0178-34	1.2	3.6	...	...	...	...	...	...
B0564-8	1.7	4.4	...	...	...	...	...	...
B0564-9	4.5	3.1	...	...	...	...	...	...	...	...	...	...
B0766-3	3.8	2.3	...	...	...	...	...	...	...	...	...	...
B1425-9	4.7	2.4	...	...	...	...	...	...
B1495-6	4.4	4.4	...	...
B1521-2	3.1	1.8	...	...
B1523-4	3.3	4.7	...	...
B1529-1	2.4	4.2	...	...
B1758-4	2.7	2.9	...	...
B1763-4	3.5	4.4
B1870-17	3.7	3.9
B1873-6	3.1	4.1
CO86218-2	2.9	2.4
NY112	3.3	3.2
NY115	3.7	4.9
NY118	5	4.4

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Upstate New York Table 20. - (CONT.) - 2000 Freeville Trials - After-cooking darkening and sloughing ratings¹

Variety/Clone	Early		Medium		Med-Late		Late		CU Clone		Red/Purp		Rus/FF	
	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG
NY120	1.7	1.4	...	...	...	...	...	...	...	...
NY121	4.4	1.0	...	...	...	...	...	...	...	...
NY123	3.1	5.0	...	...	...	...	...	...	...	...
NY124 (SI4-2)	4.3	2.8	...	...	...	...	...	...	...	...
NY125 (S28-2)	4.5	4.3	...	...	...	...	...	...	...	...	...	...	...	...
NYE11-45	3.4	3.4	...	...	...	...	...	...	...	...
T2-2	4.4	3.4	...	...	...	...
T3-5	1.1	1.7	...	...	...	...
T3-9	1.9	4.2	...	...	...	...
T11-2	3.1	3.5	...	...
T15-1	4.1	2.1	...	...
T15-3	3.8	4.1	...	...
T20-15	4.9	3.6	...	...	...	...
T27-21
T28-1	3.5	3.5	...	...	...	...
T35-19	4.3	3.7	...	...	...	...
T35-34	2.1	2.7	...	...	...	...
T35-39	4.0	1.0	...	...	...	...
T37-3	1.5	2.7	...	...	...	...
W1242	2.9	1.3	...	...	...	...
W1313	1.1	3.3	...	...	...	...	...	...	...	...	...	...
	3.1	2.1	...	...	...	...	...	...	...	...	...	...

(Continued on Next Page)

Upstate New York Table 20. - (CONT.) - 2000 Freeville Trials - After-cooking darkening and sloughing ratings¹

¹Five tubers from each replicaton were peeled, dipped in a 0.5% sodium bisulfite solution, and cooked in an autoclave for 8-1/2 minutes at 350°F, followed by a 15 minute slow exhaust. After removal from the autoclave and cooling for 10 minutes at room temperature, the tubers were rated on a scale of 1 to 5, with 5 = no after-cooking darkening or sloughing, and 1 = bad after-cooking darkening or sloughing. A minimum score of 3 would probably be acceptable. These trials were stored at 50°F until the time of cooking, which was done January 24-25, 2001.

Upstate New York Table 21. 2000 County Trials - After-cooking darkening and sloughing ratings¹

Variety/Clone	Wayne-Red		Wayne-Whit		Steuben		Wyoming		Orleans	
	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG
Amandine	...	...	5.0	4.0	...	...	...	...	...	...
Atlantic	...	...	4.4	3.6	4.5	1.8	3.4	1.3	...	...
Castile	...	...	...	...	...	...	...	...	5.0	4.4
Cherry Red	4.6	4.8	...	...	...	...	...	...	...	...
Chieftain	5.0	5.0	...	...	...	...	...	...	5.0	5.0
Dark Red Norland	4.6	4.2	...	...	...	...	...	...	5.0	4.6
Eva	...	...	2.6	3.8	...	...	...	...	5.0	4.6
Genesee	...	...	...	...	...	...	...	...	5.0	4.4
Kanona	...	...	...	...	1.8	3.3	2.0	3.1	...	...
Katahdin	...	...	3.0	4.2	...	...	...	...	5.0	5.0
Keuka Gold	...	...	4.4	3.8	...	...	...	...	5.0	4.8
Marine	...	...	5.0	4.0	...	...	...	...	...	...
Monona	...	...	...	...	...	...	...	...	5.0	5.0
Pike	...	...	...	...	2.9	1.5	3.2	2.0	...	...
Purple 5	5.0	4.6	...	...	...	...	...	...	...	...
Reba	...	...	3.8	5.0	1.5	3.9	3.1	4.2	5.0	4.6
Redsen	3.2	3.6	...	...	...	...	...	...	...	...
Salem	5.0	4.4
Sandy	4.2	4.2
Snowden	2.8	1.0	2.8	1.2
Superior	4.8	4.4	5.0	4.6
Yukon Gold	4.6	3.4	5.0	4.6

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Upstate New York Table 21. - (CONT.) - 2000 County Trials - After-cooking darkening
and sloughing ratings¹

Variety/Clone	Wayne-Red		Wayne-White		Steuben		Wyoming		Orleans	
	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG
B0178-34	---	---	---	---	1.0	3.4	1.0	4.4	---	---
B1491-5	4.6	5.0	---	---	---	---	---	---	---	---
B1495-6	5.0	5.0	---	---	---	---	---	---	---	---
B1521-2	4.2	3.0	---	---	---	---	---	---	---	---
B1523-4	5.0	5.0	---	---	---	---	---	---	5.0	5.0
B1529-1	3.8	4.6	---	---	---	---	---	---	---	---
B1758-4	3.4	4.6	---	---	---	---	---	---	---	---
B1763-4	5.0	4.6	---	---	---	---	---	---	---	---
B1768-20	4.4	4.6	---	---	---	---	---	---	---	---
B1816-5	5.0	4.4	---	---	---	---	---	---	---	---
B1952-2	4.4	4.2	---	---	---	---	---	---	---	---
CO86218-2	4.8	5.0	---	---	---	---	---	---	---	---
NY112	---	---	---	---	2.1	1.7	2.0	1.4	---	---
NY115	---	---	---	---	4.0	4.8	3.6	5.0	5.0	4.8
NY118	5.0	4.4	---	---	---	---	---	---	5.0	5.0
NY120	---	---	---	---	1.5	1.0	1.1	1.2	---	---
NY121	---	---	5.0	3.2	---	---	---	---	---	---
NY123	---	---	3.6	4.6	---	---	---	---	---	---
NY124 (S14-2)	---	---	---	---	3.6	2.3	3.5	2.8	---	---
NY125 (S28-2)	---	---	4.6	4.4	---	---	---	---	---	---
NYE11-45	---	---	3.4	4.8	---	---	---	---	5.0	4.8

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Upstate New York Table 21. - (CONT.) - 2000 County Trials - After-cooking darkening
and sloughing ratings¹

Variety/Clone	Wayne-Red		Wayne-White		Steuben		Wyoming		Orleans	
	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG
T2-2	---	---	4.8	5.0	3.7	2.3	3.5	2.5	---	---
T3-5	---	---	1.4	2.8	1.6	2.4	1.6	2.3	---	---
T11-2	5.0	4.8	---	---	---	---	---	---	---	---
T15-1	5.0	4.2	---	---	---	---	---	---	---	---
T15-3	5.0	5.0	---	---	---	---	---	---	---	---
T20-15	---	---	5.0	3.8	---	---	---	---	---	---
T27-21	---	---	5.0	3.4	---	---	---	---	---	---
T28-1	---	---	4.4	4.0	---	---	---	---	---	---
T35-19	---	---	4.8	4.2	---	---	---	---	---	---
T35-34	---	---	4.8	2.0	---	---	---	---	---	---
T35-39	---	---	3.0	2.6	---	---	---	---	---	---
U109-6	---	---	4.2	2.2	---	---	---	---	---	---

¹Five tubers from each replicaton were peeled, dipped in a 0.5% sodium bisulfite solution, and cooked in an autoclave for 8-1/2 minutes at 350°F, followed by a 15 minute slow exhaust. After removal from the autoclave and cooling for 10 minutes at room temperature, the tubers were rated on a scale of 1 to 5, with 5 = no after-cooking darkening or sloughing, and 1 = bad after-cooking darkening or sloughing. A minimum score of 3 would probably be acceptable. These trials were stored at 50°F until the time of cooking, which was done January 24-25, 2001.

NORTH CAROLINA

G. Craig Yencho and Mark E. Clough¹

Introduction:

The objectives of the North Carolina breeding program are to develop potato cultivars (chippers, round whites and reds) with improved yield, processing and fresh market quality, resistance to diseases and pests, and tolerance to abiotic stresses, for use in the mid-Atlantic and Southeastern US. Because NC is a smaller producer of potatoes with no seed industry we achieve these goals by collaborating extensively via early generation selection and evaluation trials with the larger breeding programs located primarily in the Northeastern US.

Cooperating Breeding Projects:

Dr. Dave Douches, Michigan State University, East Lansing, MI

Dr. Kathleen Haynes, USDA-ARS Beltsville, MD

Mr. Bryce Farnsworth, North Dakota State University, Fargo, ND

Drs. Robert Plaisted and Walter DeJong, Cornell University, Ithaca, NY

Dr. Al Reeves, University of Maine, Presque Isle, ME

Cooperating County Extension Specialists:

Mr. Tom Campbell, Elizabeth City, NC (Pasquotank Co.)

Mr. Bill Jester, Kinston, NC (Greene, Lenoir, and Wayne Co's.)

Mr. Fred May, Bayboro, NC (Pamlico Co.)

Mr. Richard Rhodes, Columbia, NC (Tyrrell Co.)

Industry Cooperators:

HZPC America's Corp., Fredericton, N.B. Canada

Can Agrico Potato Corp., Grand Falls, N.B. Canada

Wise Foods Inc., Berwick, PA

NC Research Station and On-farm Cooperator

Locations:

Tidewater Research Station (NCDA&CS)/Vernon G. James Research and Extension Center, (NCSU), Plymouth, NC (Washington Co.)

Bright Farms, Weeksville, NC (Pasquotank Co.)

Cooper Farms, Gumneck, NC (Tyrrell Co.)

McCotter Farms, Vandemere, NC (Pamlico Co.)

Tull Hill Farms, Kinston, NC (Lenoir Co.)

Methods:

All trials were planted in a randomized complete block design with four replications except the unreplicated preliminary evaluation trial, which had only one plot per clone. Sixteen clones were evaluated in all grower trials except the Tull Hill trial where 12 clones were evaluated. Plots consisted of 1 row with 28 hills spaced 9 inches apart. Spacing between rows was 38 inches at all sites. Weed and pest control practices for on-farm trials were in accordance with those practiced by the cooperators:

The trials were dug using a single-row digger and hand harvested. All grower trials were graded using a portable Lockwood Grader which sorts to two grades: 1's < 1 1/2"; and 2's > 1 1/2". The TRS/VGJREC trials were graded to five classes: 1's < 1 7/8"; 2's > 1 7/8 to 2 1/2"; 3's > 2 1/2 to 3 1/4"; 4's > 3 1/4 to 4"; 5's > 4". Culls were removed and weighed separately in all trials. Each clone was evaluated for tuber quality and appearance during grading, and while specific gravity measurements were being conducted.

After grading and weighing, 40 marketable tubers (10 tubers/replication) were randomly sampled from each entry. The tubers were cut and scored for the presence of hollow heart, heat necrosis and any other internal defects. Subsamples of marketable tubers were also taken from each replication and bulked by entry for specific gravity readings and chipping tests. Specific gravity was determined using the weight-in-air/ weight-in-water method. Chip ratings were done at the TRS/VGJREC and by Wise Foods, Berwick, PA.

Results:

2000 Season

Eastern North Carolina's potato season started with good conditions putting us slightly ahead of planting and on par with last year. Temperatures both this year and last year were similar. While the precipitation totals were also similar, the distribution

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of rain during the 2000 growing season reduced tuber size in most of our trials because less rainfall accumulated during the bulking period.

Trial Summary

A total of 156 clones were evaluated by the program during the 2000 season. The data for each trial is summarized in Tables 1-8. Each table has two parts, the first (a) being devoted to yield information and specific gravity readings, and the second (b) providing potato plant and tuber quality parameters, and chip color scores. This year chip evaluations were conducted at Wise Foods and the TRS/VGJREC. Each of these are presented in the table. Chipping at the TRS/VGJREC was done at least once within 48 hrs of harvest, but in many cases varieties were chipped and rated two or three times and Table b shows a mean score. To transport the potatoes for chip samples at Wise Foods in Berwick, PA the potatoes (5 tubers per sample) were placed in a plastic mesh bag and loaded on the back of a truck in route to Wise. In most cases, chip evaluations were conducted within 72-96 hrs of digging.

On-Farm Trials

Bright Variety Trial (Tables 1a and 1b)

Total yields for this trial were higher in 2000 compared to 1999. However, marketable yields were slightly down. For marketable yield, seven clones performed better than Atlantic (245 cwt/A): B0564-9 (328 cwt/A), B0766-3 (281 cwt/A), AF875-15 (270 cwt/A), NorDonna (268 cwt/A), Colombo (267 cwt/A), B0564-8 (263 cwt/A), and B0178-34 (250 cwt/A). The primary problems observed in this trial were misshapen tubers and soft rot. The increased presence of soft rot in the tubers may have been the result of heavy rains just before harvest. In addition, there was a high percentage of pick-outs for Arnova, CK87-1008, and Maranca, mostly because of secondary sprouting. The specific gravities this year were comparable to last year and only one clone, B0178-34, had a gravity (1.080) greater than Atlantic (1.078). Nine varieties from this trial were chipped and all except (Superior - 3.3 TRS, 4.0 Wise) scored better than or equal to Atlantic (2.7 TRS, 3.5 Wise). Appearance-wise, the three most attractive clones were the white clones B0564-8 and B0564-9, and the red variety NorDonna.

Cooper Variety Trial (Tables 2a and 2b)

Both total and marketable yields were up from last year for Cooper's trial. The marketable yield for Atlantic was 394 cwt/A. Of the fifteen remaining

varieties, five had greater yields: AF875-15 (435 cwt/A), Snowden (434 cwt/A), AF1569-2 (430 cwt/A), B0564-8 (415 cwt/A), and B0564-9 (410 cwt/A). Only one clone, B0178-34 (1.077), exceeded the specific gravity of Atlantic (1.073). Fifteen varieties were chipped from Cooper's trial excluding, B1752-5, a yellow-flesh clone. Atlantic at the TRS had a chip score of 2.3. Five other varieties had better chip scores than Atlantic: Snowden (1.7), B0766-3 (1.7), B0178-34 (2.0), AF875-15 (2.0), and AF1856-1 (2.0). Wise chip scores while generally within one point of the TRS scores yielded slightly different results. Atlantic had a Wise score of 1.5 and only one clone (B0766-3) had a score equal to Atlantic while all others were lower. Three varieties were given exceptional tuber appearance scores: B0564-8, B0564-9, and B1752-5.

McCotter Variety Trial (Tables 3a and 3b)

Overall, yields were up almost 100 cwt/A for total yield and about 80 cwt/A for marketable yield compared to 1999. This year three clones had yields greater than Atlantic (298 cwt/A): B0564-8 (332 cwt/A), B0178-34 (324 cwt/A), and NorDonna (308 cwt/A). Atlantic had the highest gravity in this trial at 1.076. Additional clones with specific gravities suitable for chipping were: AF875-15, B0178-34, B0564-8, B0564-9, and B0766-3. Chipping was done on thirteen varieties. Atlantic had a score of 1.0 at the TRS and a 2.0 from Wise. The TRS ratings yielded seven other clones equal to Atlantic: AF1437-1, AF1565-12, AF1569-2, AF875-15, B0178-34, B0766-3, and Snowden. Wise rated only two other clones scores equal or greater than Atlantic: B0178-34 (1.5), and B0766-3 (1.5). Only two clones had exceptional appearance scores (B0564-8 and B0564-9). All other clones were rated lower.

Tull Hill Farms Red Variety Trial (Tables 4a and 4b)

Yields at our Tull Hill Farms variety trial were reduced this year. This is because prior to emergence four inches of rain washed out the rows in our test plot and when the seed pieces were covered again they were covered too deep. The delayed emergence and the greater potential for seed piece loss most likely contributed heavily to the decreased yields in this plot. Our standard for red trials, Chieftain, yielded 169 cwt/A and only two other varieties B1758-4 (181 cwt/A), and NorDonna (179 cwt/A) produced greater yields. In terms of appearance, only NorDonna was given a rating of exceptional, three

others were given a good rating: B1758-3, ND3574-5R, and Redsen.

Research Station Trials

We had few problems on the Tidewater Research Station in 2000. Wire grass control was however a problem primarily in the first replication of Round White trial 1. Also, this site was drier than our on-farm sites. This year we split our round white variety test into two trials to make the number of clones per trial more manageable. Also, we established another trial, the HZPC/Nitrogen Rate Trial to determine the optimal nitrogen fertilization rates for HZPC potatoes and promising varieties.

Round White Trial 1. (Tables 5a and 5b)

Of the twenty-eight clones in this trial, fourteen clones produced marketable yields greater than Atlantic, which produced 142 cwt/A. The top five clones were: AF1938-3 (212 cwt/A), NY112 (208 cwt/A), AF1569-2 (200 cwt/A), B1497-22 (193 cwt/A) and, Eva* (190 cwt/A). Scores for the twelve clones chipped in this trial were relatively poor. For the TRS ratings, Atlantic scored a 5 which is unacceptable and 2 for Wise which is excellent. All clones chipped at the TRS, with the exception of AF1437-1, were rated better than Atlantic. In contrast, Atlantic was one of the higher rated chips for Wise, four other clones also received the rating of excellent from Wise: B1339-2, Eva (formerly NY103), NY115, and NY120. Clones with the highest incidence of heat necrosis were Atlantic (53%), B1624-22 (38%), Keuka Gold (45%), and NY112 (50%).

Round White Trial 2. (Tables 6a and 6b)

In this trial, Atlantic had a marketable yield of 134 cwt/A. Out of the other nineteen clones, five produced equal or greater yields: MSE048-2Y (163 cwt/A), Pungo (155 cwt/A) MSF373-8 (136 cwt/A), T126-11 (137 cwt/A), and ARS6498-5 (135 cwt/A). Five clones had specific gravity measurements equal to or better than Atlantic (1.073): B1591-1 (1.082), B1425-9 (1.076), MSF373-8 (1.074), MSG274-3 (1.073), and Russet Norkota #3117 (1.073). Nine clones had a high incidence of heat necrosis: Atlantic (70%), ND5822C-7 (60%), MSE048-2Y (55%), MSA091-1 (53%), Green Mountain (35%), MSB106-7 (35%), ARS6498-5 (33%), Pungo (33%), and T126-11 (20%). Seven varieties were chipped and Atlantic was rated as excellent (2.0) at the TRS and marginal (4.0) by Wise. For Wise, all of the remaining clones chipped better, the highest being Snowden rated as excellent (2.0). For the TRS chip

samples no clones had ratings better than Atlantic, although three others did have scores equal to that of Atlantic: B1591-1, MSA091-1, and Snowden. In terms of overall appearance, no clones in this trial were assigned the rating of excellent, however, three (B1591-1, Snowden, and T28-1) were designated as good.

HZPC/Nitrogen Rate Trial. (7a and 7b)

This trial, conducted with additional support from HZPC America's Corp., was designed to compare the nitrogen response of six different clones: Atlantic; B0564-8; Ceasar; Fabula; Mondial; and Superior. Nitrogen was applied at three levels (0 lbs/A, 75 lbs/A, and 150 lbs/A). Based on a soil test the recommendations for nitrogen application were between 120 and 160lbs/A. The experimental design was a split-plot, with nitrogen rate as the main plot and clone as the subplot.

Results were variable and it is difficult to draw nitrogen response conclusions based on this one test. From highest to lowest the mean marketable yields of the clones across nitrogen rates were: B0564-8 (117 cwt/A); Atlantic (112 cwt/A); Fabula (107 cwt/A); Superior (107 cwt/A); Ceasar (91 cwt/A); and Mondial (37 cwt/A). Fabula had the highest percentage of its yield in the number 3 size class, 21% occurring in this class. But, it also had the lowest overall total yield (136 cwt/A). In terms of specific gravity, the clone means were: Atlantic (1.072); Superior (1.069); B0564-8 (1.065); Ceasar (1.056); Mondial (1.049); and Fabula (1.047). Based on appearance, Atlantic, B0564-8 and Superior looked the best with scores of 7 (good). Ceasar and Fabula both received scores of 5 (fair) and Mondial was given a score of 1 (poor). Mondial's low appearance score can be attributed to the number of culls: 57% was culled, primarily due to heat sprouts. The next highest percentage of culls was Atlantic with 11%, primarily due to misshapen tubers and soft rot.

Unreplicated Trial (Tables 8a and 8b)

This trial is designed to allow a first look at varieties produced by other breeding programs. Those clones with promising attributes such as high yield, exceptional appearance or high disease resistance will then be evaluated the following year in a replicated trial.

Overall Summary

The round white clones from the USDA with the most potential were: B0564-8, B0564-9, B0178-34,

and B0766-3. The yield was off for B0766-3 and the appearance for B0178-34 and B0766-3 were only better than fair, but they both chipped well and had high gravities in all trials. The clones B0564-8 and B0564-9 both had exceptional appearances overall and low incidence of disease and internal defects. From the University of Maine, the clones showing the most promise were: AF875-15, AF1569-2, and AF1437-1. Yields overall were comparable to Atlantic and these clones had no heat necrosis, however, gravities were lower than Atlantic. From Cornell University, the clones that preformed best were Eva, Keuka Gold, and NY112. However, Keuka Gold and NY112 suffer from heat necrosis, so they may not be suitable for North Carolina. Gravities for all three were lower than Atlantic but yields were higher overall.

V. ACKNOWLEDGMENTS

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NORTH CAROLINA Table 1a. Bright Farms Variety Trial, Pasquotank Co. Planted 3-7-00. Harvested 6-21-00 (106 DAP).

CLONE	Total Yield	Marketable Yield		Size Distribution by Class ¹			Specific Gravity ²
	cwt/A	cwt/A	% Atl.	1's + 2's	3's	Culls	
AF1565-12	256	227	93	88	9	3	1.062
AF875-15	322	270	112	84	14	3	1.073
Arnova	347	232	95	66	9	25	1.052
Atlantic (std.)	289	245	100	85	12	3	1.078
B0178-34	271	250	103	92	7	1	1.080
B0564-8	292	263	106	90	10	0	1.072
B0564-9	351	328	136	93	7	0	1.071
B0766-3	309	281	115	91	8	1	1.077
CK87-1008	297	187	77	64	9	28	1.051
Colombo	320	267	109	83	13	4	1.057
Maranca	343	163	68	44	19	37	1.049
ND3574-5R	216	153	64	70	25	5	1.052
ND5084-3R	257	190	79	74	23	3	1.046
NorDonna	315	268	110	85	13	2	1.056
Snowden	273	219	90	80	17	3	1.075
Superior	250	222	91	88	6	6	1.066
Grand Mean	294	235					
CV (%)	17	20					
LSD (K=100)	114	72					

Size classes: 1's + 2's > 1 1/2". 3's < 1 1/2". Culls = all defective potatoes

¹ Size classes: 1's + 2's > 1 1/2"; 3's < 1 1/2"; Culls = all defective potatoes.² Determined by weight in air/water method.

NORTH CAROLINA Table 1b. Bright Farms Variety Trial, Pasquotank Co. Planted 3-7-00. Harvested 6-21-00 (106 DAP).

CLONE	Plant Data ¹				Tuber Data ¹								Internal Defects ³ (no./40 tubers)					Chip Color ⁴		Comments ²	
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	TRS		Wise
AF1565-12	4	8	9	4	8	7	5	7	3	5	7	7	7	0	-	0	3	0	2.7	4.0	MS,LE,ID,RZ
AF875-15	6	8	8	5	6	7	5	7	3	8	3	7	5	0	-	0	10	1	2.0	3.0	SR,DAE,DBE,PR,MS,SG,CPB
Arnova	6	8	9	7	9	7	5	7	6	8	7	7	3	0	-	0	9	0	-	-	SG,SS,SR,YF
Atlantic (std.)	7	8	9	6	6	5	7	5	2	8	6	7	7	0	-	0	1	1	2.7	3.5	GC,MS,EL,GC,SR
B0178-34	9	8	9	7	8	7	4	7	3	7	7	7	5	1	8	0	5	0	2.0	3.5	DAE,SS
B0564-8	6	8	9	5	6	6	7	7	1	8	5	8	8	0	-	0	5	0	2.0	3.0	CPB
B0564-9	6	7	9	5	6	5	7	7	2	6	7	8	9	0	-	0	0	0	2.7	3.5	MS,SR,EL,EB
B0766-3	6	8	9	7	6	6	6	6	2	7	6	8	7	0	-	0	0	0	1.7	2.0	DAE,MS,SS
CK87-1008	5	8	9	5	9	8	5	8	5	8	7	8	3	0	-	0	2	0	-	-	SG,MS,YF
Colombo	6	8	8	6	9	7	5	7	5	6	6	7	7	0	-	0	3	0	-	-	SG,PTS,MS,SR,YF
Maranca	9	9	9	8	9	7	5	7	6	8	5	7	6	0	-	0	5	0	-	-	SG,PTS,MS,YF
ND3574-5R	4	8	8	3	2	7	6	7	4	6	5	7	5	0	-	0	1	0	-	-	SR,SS,RZ,ID,CPB
ND5084-3R	9	8	9	8	2	7	7	5	2	6	6	7	4	1	6	0	4	0	-	-	STST,MS
NorDonna	6	8	9	6	2	7	7	7	2	6	5	8	8	0	-	0	6	0	-	-	SS,ID,CPB
Snowden	8	8	8	7	6	5	7	7	2	5	3	8	7	0	-	0	0	0	2.7	2.0	PTS,MS,SR,ID
Superior	6	8	9	4	6	6	6	8	8	5	5	8	7	0	-	0	10	0	3.3	4.0	MS,SR,CPB

¹ See NE-184 standard potato rating system for key to scores.

² Comment codes: AC=air cracks; BR=bruise; CPB=Colorado potato beetle; CS=common scab; DAE=deep apical eyes; DSA=deep stolen end; EB=early blight; ECB=European corn borer; EL=enlarged lenticels; FS=Fusarium wilt; GC=growth cracks; HI=herbicide injury; HS=heat sprouts; IL=infected lenticels; LB=late blight; LHD=leaf hopper damage; MS=misshaped tubers; PE=pink eye; PR=pink rot; PLRV=potato leafroll virus; PTS=very pointed tubers; PS=powdery scab; PVA,PVX,PVY=potato viruses A, X, Y; RZ=Rhizoctonia; SEB=stem end browning; SG=secondary growth; SIS=silver scurf; SKN=skins; SS=sun scald; SR=soft rot; STST=sticky stolens; VW=Verticillium wilt; WSTD=weak stand; WW=wire worm; YF=yellow flesh Note: L before code indicates high levels

³ HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1=very severe to 9=absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center.

⁴ Chip Color Ratings conducted by Wise Foods Inc. 1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

NORTH CAROLINA Table 2a. Cooper Farms Variety Trial, Tyrrell Co. Planted 3-3-00. Harvested 6-20-00 (109 DAP).

CLONE	Total Yield		Marketable Yield		Size Distribution by Class ¹				Specific Gravity ²
	cwt/A		cwt/A	% Atl.	1's + 2's	3's	Culls		
AF1437-1	384		365	93	95	3	2	1.049	
AF1475-20	376		349	88	92	6	1	1.070	
AF1565-12	328		300	77	91	6	3	1.059	
AF1569-2	473		430	109	91	7	2	1.057	
AF1615-1	331		284	72	86	11	3	1.055	
AF1856-1	328		314	80	96	3	2	1.066	
AF875-15	483		435	111	90	7	3	1.066	
Atlantic (std.)	446		394	100	89	8	4	1.073	
B0178-34	414		381	97	92	4	4	1.077	
B0564-8	453		415	106	92	8	1	1.069	
B0564-9	428		410	105	96	2	2	1.065	
B0766-3	345		322	81	93	5	2	1.070	
B1240-1	357		340	87	95	3	1	1.064	
B1752-5	342		306	78	90	7	3	1.064	
Snowden	492		434	110	88	11	1	1.069	
Superior	404		385	98	95	3	2	1.069	
Grand Mean	399		367						
CV (%)	10		11						
LSD (K=100)	52		55						

Size classes: 1's + 2's > 1 1/2". 3's < 1 1/2". Culls = all defective potatoes.

¹ Size classes: 1's + 2's > 1 1/2"; 3's < 1 1/2"; Culls = all defective potatoes.² Determined by weight in air/water method.

NORTH CAROLINA Table 2b. Cooper Farms Variety Trial, Tyrrell Co. Planted 3-3-00. Harvested 6-20-00 (109 DAP).

CLONE	Plant Data ¹				Tuber Data ¹								Internal Defects ³ (no./40 tubers)				Chip Color ⁴		Comments ²		
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC		TRS	Wise
AF1437-1	6	9	8	5	6	5	5	6	3	6	7	7	7	0	-	0	0	0	4.0	4.5	SG,SR,GC,DSA/DAE
AF1475-20	6	9	9	8	6	7	3	5	2	6	6	8	5	0	-	0	0	0	3.0	3.0	MS
AF1565-12	5	8	7	4	6	8	5	7	4	7	5	7	6	3	8	0	0	1	3.3	4.5	SR,ID,MS,
AF1569-2	6	9	9	5	6	6	7	7	3	8	7	8	7	0	-	0	0	0	2.7	3.5	SR,SS,GC
AF1615-1	6	9	8	7	6	7	5	5	8	8	5	8	6	0	-	0	0	0	3.3	3.0	Pts,MS,SS
AF1856-1	6	8	6	6	6	7	6	6	6	6	7	8	7	0	-	0	1	0	2.0	2.0	MS,SR,DAE,SS
AF875-15	8	8	7	4	6	6	4	5	8	7	5	8	5	0	-	0	1	0	2.0	3.0	SS,MS,DSA,DAE
Atlantic (std.)	7	9	9	5	6	5	7	6	2	8	5	8	7	3	7	0	1	0	2.3	1.5	MS,SR,SS
B0178-34	8	8	9	8	6	6	4	5	4	8	7	8	5	0	-	0	0	1	2.0	2.0	SCB,MS,SG
B0564-8	6	8	8	5	6	5	6	7	2	8	5	8	8	0	-	0	0	0	2.3	3.0	SS,MS,EB
B0564-9	8	9	8	6	6	5	5	5	3	6	7	8	8	0	-	1	0	0	2.7	2.0	SS,ID,EB
B0766-3	6	9	9	8	6	5	6	5	3	7	7	8	6	0	-	0	0	1	1.7	1.5	MS,DAE
B1240-1	6	9	8	7	8	7	6	6	3	7	6	7	6	0	-	0	0	0	2.7	3.5	DSA,GC,RZ
B1752-5	7	8	7	5	6	8	7	7	2	8	5	7	8	0	-	0	0	0	-	-	SR,GC,ID,SS,ECB,YF
Snowden	9	9	7	8	6	5	7	7	2	5	4	7	7	0	-	0	0	0	1.7	2.0	DAE,DSA,SR
Superior	6	8	9	4	6	6	6	7	3	5	5	8	6	0	-	0	0	9	3.7	4.0	ID,MS,SR

1,2,3,4 See North Carolina Table 1b.

NORTH CAROLINA Table 3a. McCotter Farms Variety Trial, Pamlico Co. Planted 3-2-00. Harvested 6-13-00 (103 DAP).

CLONE	Total Yield		Marketable Yield		Size Distribution by Class ¹				Specific Gravity ²
	cwt/A		cwt/A	% Atl.	1's + 2's	3's	Culls		
AF1437-1	320		272	92	85	5	10		1.050
AF1565-12	275		216	73	78	13	9		1.060
AF1569-2	371		297	100	80	11	9		1.061
AF1615-1	347		271	91	78	11	11		1.060
AF875-15	257		204	69	79	14	7		1.073
Atlantic (std.)	355		298	100	84	7	9		1.076
B0178-34	364		324	109	89	9	2		1.075
B0564-8	361		332	112	92	6	3		1.067
B0564-9	339		294	99	87	12	1		1.070
B0766-3	335		283	96	84	11	5		1.071
B1752-5	237		202	68	85	11	4		1.064
B9922-11	242		176	60	72	19	9		1.068
Cherry Red	289		227	77	78	14	8		1.070
NorDonna	369		308	104	83	13	4		1.054
Snowden	272		189	64	69	27	3		1.070
Superior	312		253	85	81	9	10		1.069
Grand Mean	315		259						
CV (%)	12		15						
LSD (K=100)	54		53						

¹ Size classes: 1's + 2's > 1 1/2"; 3's < 1 1/2"; Culls = all defective potatoes.² Determined by weight in air/water method.

NORTH CAROLINA Table 3b. McCotter Farms Variety Trial, Pamlico Co. Planted 3-2-00. Harvested 6-13-00 (103 DAP).

CLONE	Plant Data ¹				Tuber Data ¹								Internal Defects ³ (no./40 tubers)					Chip Color ⁴		Comments ²	
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	TRS		Wise
AF1437-1	5	7	8	5	8	7	5	7	3	8	5	5	7	0	-	0	0	0	1	5	SR
AF1565-12	5	7	7	3	8	8	5	7	5	5	6	7	4	0	-	0	0	0	1	4	SR,MS,SS
AF1569-2	6	8	9	6	6	6	7	7	3	7	7	7	5	0	-	0	0	0	1	2.5	SCB,GC,SR,SS,MS
AF1615-1	7	8	8	5	8	8	5	7	4	8	6	7	5	0	-	0	0	4	2	4	PTS,MS,SIS
AF875-15	8	7	6	4	6	6	4	7	2	8	5	7	7	0	-	2	0	0	1	2.5	GC,DAE,STST
Atlantic (std.)	8	8	7	5	6	6	7	7	2	8	7	6	6	1	7	1	0	0	1	2	SS,MS,SE,GC
B0178-34	8	8	8	7	8	6	4	3	2	6	6	7	6	0	-	1	0	16	1	1.5	GC
B0564-8	7	8	8	5	6	5	7	7	2	8	7	8	9	0	-	0	0	2	2	4	SR
B0564-9	7	8	8	7	6	5	5	7	2	8	6	8	8	0	-	0	0	0	1.3	4	GC,SR
B0766-3	6	8	8	6	6	6	7	7	2	7	7	7	6	0	-	3	0	2	1	1.5	SR,MS,GC
B1752-5	8	7	7	5	6	8	5	7	3	8	6	7	6	0	-	2	0	7	3	5	SS,GC,YF,ECB
B9922-11	9	8	9	7	4	2	5	7	8	8	3	5	6	0	-	4	0	1	-	-	GC,SR
Cherry Red	8	8	8	5	2	7	5	7	5	6	5	7	6	0	-	2	0	4	-	-	PTS,SIS,MS
NorDonna	8	8	8	5	2	8	7	7	2	5	7	7	8	0	-	0	0	0	-	-	SCB,RZ,DAE,MS,SS
Snowden	9	7	6	7	6	5	7	8	2	6	3	7	7	0	-	0	0	0	1	2.5	GC,SS,MS
Superior	6	8	8	5	6	6	6	7	3	5	6	5	5	0	-	0	0	2	3	4	SR,MS,SS

^{1, 2, 3, 4} See North Carolina Table 1b.

NORTH CAROLINA Table 4a. Tull Hill Farms Variety Trial, Lenior Co. Planted 2-25-00. Harvested 6-15-00 (110 DAP).

CLONE	Total Yield cwt/A	Marketable Yield		Size Distribution by Class ¹ (% of total yield)				Specific Gravity ²
		cwt/A	% Atl.	1's + 2's	3's	Culls		
B1145-2	146	94	60	65	27	8	1.063	
B1521-2	171	114	77	67	30	3	1.058	
B1758-3	156	127	81	81	14	5	1.065	
B1758-4	229	181	119	79	14	8	1.065	
Cherry Red	186	147	90	78	15	6	1.066	
Chieftain (std.)	209	169	100	80	13	7	1.054	
ND3574-5R	194	145	93	74	19	7	1.051	
ND5084-3R	186	139	92	74	21	4	1.040	
NorDonna	217	179	117	82	15	3	1.056	
Redsen	162	119	77	73	24	3	1.062	
Rideau	198	150	96	75	12	13	1.056	
Sup. Red Norland	147	111	76	74	21	5	1.049	
Grand Mean	184	140						
CV (%)	21	26						
LSD (K=100)	65	77						

¹ Size classes: 1's + 2's > 1 1/2"; 3's < 1 1/2"; Culls = all defective potatoes.² Determined by weight in air/water method.

NORTH CAROLINA Table 4b. Tull Hill Farms Variety Trial, Lenior Co. Planted 2-25-00. Harvested 6-15-00 (110 DAP).

CLONE	Plant Data ¹				Tuber Data ¹							Internal Defects ³ (no./40 tubers)					Comments ²		
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH		VR	BC
B1145-2	7	8	8	-	2	8	7	7	2	5	2	6	5	0	-	0	8	0	PTS,SR,STST,MS
B1521-2	9	8	8	-	2	6	7	5	1	6	4	7	6	0	-	0	0	1	MS,STST
B1758-3	8	8	9	-	2	6	7	6	2	7	6	7	7	0	-	0	0	0	GC, MS, PTS
B1758-4	9	8	8	-	2	7	5	7	3	4	7	6	4	0	-	3	0	4	SR,GC,PTS,MS
Cherry Red	9	9	9	-	2	6	7	7	4	5	6	8	-	0	-	0	0	0	PTS,MS
Chieftain (std.)	9	9	9	-	3	7	6	6	3	3	7	7	5	0	-	0	0	0	GC,MS,PTS
ND3574-5R	6	7	7	-	2	7	7	7	3	5	6	7	7	0	-	0	0	0	SR,PTS,STST
ND5084-3R	9	9	9	-	2	8	7	6	2	5	7	7	3	0	-	0	0	0	STST,MS,SG,SIS
NorDonna	8	8	9	-	2	8	7	7	2	6	5	6	8	0	-	0	0	0	SR,SIS,SG,MS,ID
Redsen	7	8	8	-	2	7	7	7	3	8	5	8	7	0	-	0	4	0	STST,SIS,RZ,AC,MS,ID
Rideau	4	8	8	-	3	8	7	7	2	4	5	7	6	0	-	0	0	0	MS,RZ,SG,SIS
Sup. Red Norland	6	6	6	-	2	8	7	7	2	4	5	7	6	0	-	0	0	1	SR,RZ,STST

1, 2, 3 See North Carolina Table 1b.

NORTH CAROLINA Table 5a. Round White Variety Trial 1, VGJREC/TRS Washington Co. Planted 3-13-00. Harvested 7-5-00 (114 DAP).

CLONE	Total Yield		Marketable Yield		Size Distribution by Class ¹						Specific Gravity ²	
	cwt/A		cwt/A	% Atl.	1's	2's	3's	4's	5's	Culls		
AF1437-1	195		170	123	9	54	32	1	0	4		1.047
AF1569-2	240		200	143	11	44	37	1	0	6		1.062
AF1615-1	154		105	78	17	56	12	0	0	15		1.055
AF1935-6	163		119	88	13	58	15	0	0	15		1.062
AF1938-3	250		212	157	7	41	43	0	0	8		1.064
AF1949-1	228		167	123	6	47	27	0	0	20		1.067
Atlantic (std.)	173		142	100	14	69	13	0	0	5		1.072
B0564-8	197		144	106	16	60	13	0	0	11		1.060
B1339-2	139		81	57	40	53	2	0	0	5		1.081
B1497-22	219		193	143	8	60	28	0	0	4		1.068
B1497-33	159		101	71	27	53	9	0	0	10		1.063
B1598-4	149		112	83	23	68	6	0	0	3		1.060
B1624-22	112		76	53	28	64	3	0	0	5		1.053
B1870-17	202		179	126	8	50	37	1	0	4		1.056
B1873-4	196		105	73	21	49	4	0	0	27		1.049
B1873-6	151		88	66	40	58	0	0	0	2		1.072
B1884-9	193		168	121	12	45	42	0	0	2		1.066
Devina	214		36	26	11	16	0	0	0	73		1.048
Keuka Gold (NY101)	167		138	102	16	64	18	1	0	1		1.066
Eva (NY103)*	215		190	143	6	49	39	0	0	5		1.063
NY112	230		208	158	7	67	23	0	0	3		1.064
NY115	85		71	53	13	51	32	0	0	3		1.066
NY120*	186		147	110	17	67	12	0	0	4		1.067
SC8801-2	179		163	120	5	41	50	0	0	4		1.052
Superior	125		93	70	18	60	14	0	0	7		1.062
T2-2*	197		172	123	7	41	45	0	0	7		1.064
T3-9*	118		72	58	18	65	13	0	0	4		1.067
T4-2*	128		94	73	12	50	23	0	0	14		1.072
Grand Mean	177		134									
CV (%)	16		19									
LSD (K=100)	38		35									

¹ Size classes: 1's < 1 7/8"; 2's 1 7/8 to 2 1/2"; 3's 2 1/2 to 3 1/4"; 4's 3 1/4 to 4"; 5's > 4"; Culls = all defective potatoes.² Determined by weight in air/water method.

* Plots had less than 28 seed pieces and, yields were adjusted to reflect a 28-hill plot.

NORTH CAROLINA Table 5b. Round White Variety Trial 1, VGJREC/TRS Washington Co. Planted 3-13-00. Harvested 7-5-00 (114 DAP).

CLONE	Plant Data ¹				Tuber Data ¹								Internal Defects ³					Chip Color ⁴		Comments ²		
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZED	DIS	APP	HN	HNR	HH	VR	BC	TRS		Wise	
AF1437-1	6	8	7	6	6	6	6	7	2	8	6	6	7	7	0	-	0	0	0	5	4	SR,MS,GC
AF1569-2	6	8	8	6	6	5	7	7	2	6	6	6	7	8	0	-	1	0	0	-	3	RZ,ID,SS,SR
AF1615-1	7	9	8	7	6	6	6	5	4	7	5	7	3	0	-	0	0	0	-	-	-	PTS,GC
AF1935-6	8	9	9	9	8	7	5	3	4	8	5	7	5	3	7	0	0	0	-	-	-	SG,GC,SR,PTS
AF1938-3	8	8	9	6	8	7	6	5	3	7	5	7	4	1	7	0	0	0	-	-	-	EL,GC,SS,MS
AF1949-1	6	8	8	8	6	6	5	5	3	7	6	7	3	1	5	0	0	0	-	-	-	SS,MS,SR,DSA,DAE,GC
Atlantic (std.)	6	8	8	5	5	5	7	7	2	8	7	7	7	3	21	7	1	0	0	5	2	SS,SR,ECB
B0564-8	6	7	8	6	6	5	7	7	2	8	7	7	6	0	-	0	0	0	4	4	4	RZ,SG,ID
B1339-2	6	8	8	6	6	6	6	6	3	8	5	7	6	0	-	3	0	0	4	2	2	SR,SS,RZ,ID
B1497-22	7	8	8	7	6	6	7	7	3	7	6	7	7	0	-	0	0	0	-	-	-	SR,SS,ECB,YF1
B1497-33	6	7	8	6	6	6	7	7	3	8	5	7	7	3	8	2	0	0	-	-	-	SG,SS,SR,YF,EB,ECB
B1598-4	5	7	6	5	6	6	6	7	3	8	5	7	6	3	7	0	1	0	-	-	-	SS,SR,MS,PTS
B1624-22	5	8	6	5	6	5	6	7	3	7	5	7	5	15	8	0	0	0	-	-	-	SR,ID,MS
B1870-17	6	8	7	6	6	5	6	7	2	7	7	7	8	2	7	0	0	0	3.5	3	3	MS,GC
B1873-4	6	8	8	8	8	7	5	4	3	8	3	7	3	1	8	0	2	0	-	-	-	SG,SS
B1873-6	5	8	8	5	6	6	7	7	2	6	3	7	6	0	-	0	0	0	-	-	-	MS,SS,SR,ECB
B1884-9	7	8	8	8	6	5	7	7	3	8	7	7	7	1	6	0	0	0	3.5	3	3	RZ,SR,ID,SS,GC,DSA
Devina	7	8	9	8	6	6	5	6	3	8	5	7	1	2	7	0	0	0	-	-	-	SG,YF
Keuka Gold (NY101)	6	8	8	6	6	6	7	7	2	6	6	7	7	18	7	0	0	0	-	-	-	MS,SR,YF
Eva (NY103)	6	8	8	6	6	6	7	7	3	8	7	6	6	2	8	0	0	0	-	-	2	RZ
NY112	7	8	8	7	5	5	5	5	3	8	7	7	6	20	6	2	0	0	3.5	3	3	PTS,RZ,ECB
NY115	5	8	8	6	9	9	6	7	3	9	6	7	7	1	8	0	0	0	3	2	2	SS,ECB
NY120	7	8	8	7	6	5	6	5	3	6	5	7	5	1	5	0	0	0	2.5	2	2	SR,PTS,ID,MS,ECB
SC8801-2	9	8	8	7	8	6	6	5	3	6	7	7	5	0	-	0	0	0	-	-	-	SR,GC,MS,SS
Superior	5	7	8	6	6	6	7	7	3	5	5	7	6	0	-	0	2	0	4	4	4	SR,SS,MS,ID
T2-2	8	8	8	7	6	6	5	6	3	7	5	7	5	0	-	0	0	0	-	-	-	MS,SR,SG,YF1
T3-9	6	7	8	7	8	6	5	6	3	8	4	7	5	0	-	1	0	0	-	-	-	SR,MS,EB
T4-2	7	8	8	7	6	5	6	5	2	8	5	7	3	0	-	0	0	0	-	-	-	PTS,MS,SG,GC

1, 2, 3, 4 See North Carolina Table 1b.

NORTH CAROLINA Table 6a. Round White Variety Trial 2, VGJREC/TRS Washington Co. Planted 3-13-00. Harvested 7-5-00 (114 DAP).

CLONE	Total Yield cwt/A	Marketable Yield		Size Distribution by Class ¹ (% of total yield)							Specific Gravity ²
		cwt/A	% Atl.	1's	2's	3's	4's	5's	Culls		
ARS6498-5	179	135	100	23	67	8	0	0	2	1.067	
ARS6527-1	101	55	41	43	49	2	0	0	6	1.069	
Atlantic (std.)	167	134	100	15	60	21	0	0	5	1.073	
B1327-6	135	91	68	21	64	4	0	0	11	1.061	
B1425-9	128	66	48	31	44	4	0	0	21	1.076	
B1591-1	175	127	94	25	68	4	0	0	3	1.082	
B1712-18	113	74	54	23	51	13	0	0	13	1.066	
Green Mtn.	185	61	45	16	31	1	0	0	51	1.068	
MSA091-1	140	84	62	36	51	8	0	0	5	1.070	
MSB106-7	160	73	56	16	44	2	0	0	38	1.056	
MSE048-2Y	200	163	120	11	57	24	0	0	8	1.068	
MSE149-5Y	156	121	88	18	58	18	0	0	6	1.064	
MSF373-8	158	136	103	9	52	31	3	0	5	1.074	
MSG274-3	138	25	19	36	19	0	0	0	45	1.073	
ND5822C-7	176	123	91	28	60	8	0	0	4	1.070	
Pungo	224	155	115	8	40	28	0	0	24	1.067	
R. Norkota #3117	143	100	76	27	65	3	0	0	6	1.065	
Snowden	174	115	86	31	59	6	0	0	4	1.073	
T126-11	170	137	100	12	59	20	0	0	9	1.070	
T28-1	126	86	65	17	49	19	0	0	14	1.058	
Grand Mean	157	103									
CV (%)	20	28									
LSD (K=100)	49	40									

¹ Size classes: 1's < 1 7/8"; 2's 1 7/8 to 2 1/2"; 3's 2 1/2 to 3 1/4"; 4's 3 1/4 to 4"; 5's > 4"; Culls = all defective potatoes.² Determined by weight in air/water method.

NORTH CAROLINA Table 6b. Round White Variety Trial 2, VGJREC/TRS Washington Co. Planted 3-13-00. Harvested 7-5-00 (114 DAP).

CLONE	Plant Data ¹				Tuber Data ¹							Internal Defects ³ (no./40 tubers)				Chip Color ⁴		Comments ²			
	DIS POLL		MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZEDIS	APP	HN	HNR	HH	VR	BC	TRS		Wise		
	TYPE																				
ARS6498-5	7	8	7	5	6	5	7	7	2	7	5	7	5	13	8	0	2	1	-	-	SR,SS,SB
ARS6527-1	5	7	7	5	8	6	5	7	4	6	1	7	3	0	-	0	0	0	-	-	SR,SS,SB,MS,SG
Atlantic (std.)	6	7	8	5	5	5	7	6	2	8	7	7	6	28	6	0	0	0	2	4	SR,SS,RZ,ECB
B1327-6	8	7	8	7	6	5	5	5	4	7	5	4	3	1	8	0	0	0	-	-	SG,RZ,PTS,ID,ECB
B1425-9	7	7	8	5	6	5	7	7	2	7	3	3	3	0	-	0	9	1	-	-	SB,SS,EB,SR,DkYF,ECB
B1591-1	6	8	7	5	6	5	6	7	3	7	5	7	7	0	-	0	1	0	2	3	SR,SG,MS,ID,ECB
B1712-18	6	8	8	5	6	6	6	5	3	8	5	5	5	0	-	0	2	0	-	-	RZ,SCB,ID,SG
Green Mtn.	7	8	8	7	8	7	5	5	4	5	7	1	1	14	7	0	0	0	-	-	RZ,SCB,EB,ECB
MSA091-1	6	7	7	6	6	5	7	7	2	8	5	8	5	21	7	0	1	0	2	2.5	SR,MS,ID,EB,ECB
MSB106-7	6	8	8	5	6	6	6	7	5	7	7	7	3	14	7	0	0	1	-	-	SG,SR,MS
MSE048-2Y	7	8	8	8	6	6	7	6	2	6	5	5	5	22	7	0	0	5	-	-	RZ,IL,RZ,ID,MS,SR,GC
MSE149-5Y	6	8	8	5	6	6	7	6	2	7	5	7	6	0	-	0	0	0	-	-	MS,PTS,YF1
MSF373-8	7	8	8	7	8	6	5	5	3	7	8	7	5	0	-	0	0	0	3	3.5	MS,DAE,GC,ECB
MSG274-3	6	8	8	6	6	6	7	7	4	8	3	7	1	0	-	0	0	0	-	-	MS,ID,SG,IL,PTS,ECB
ND5822C-7	6	7	8	7	6	6	7	5	2	7	3	7	5	24	6	0	0	0	-	-	SR,MS,EB
Pungo	6	7	8	6	6	5	6	6	2	5	6	7	3	13	7	0	3	0	-	-	SG,SR,ECB
R. Norkota #3117	7	8	7	6	4	2	5	5	6	8	3	7	4	0	-	0	1	0	-	-	RZ,MS,ECB
Snowden	6	8	8	6	6	5	7	7	2	7	4	-	7	1	3	0	0	1	2	2	MS,SR,SS,ID,ECB
T126-11	6	8	8	5	8	6	7	7	3	7	5	7	5	8	7	0	0	0	3	2.5	MS,SG,SR,LE,ECB
T28-1	5	7	6	4	6	6	7	7	2	8	5	6	7	0	-	0	2	0	3	3.5	SR,RZ,SS,ID,ECB

1, 2, 3, 4 See North Carolina Table 1b.

NORTH CAROLINA Table 7a. HZPC Nitrogen Variation Potato Variety Trial, VGJREC/TRS Washington Co. Planted 3-14-00. Harvested 6-28-00 (106 DAP).

CLONE	N-Rate lb/A	Total Yield cwt/A	Marketable Yield		Size Dist. by Class (%)					Specific Gravity ²	
			cwt/A	% Atlantic	1's	2's	3's	4's	5's	Cull's	Gravity ²
Atlantic	0	132	100	100	14	42	34	0	0	11	1.071
Atlantic	75	166	127	100	12	52	25	0	0	12	1.075
Atlantic	150	153	110	100	18	52	20	0	0	11	1.071
B0564-8	0	172	116	115	28	58	8	0	0	6	1.061
B0564-8	75	172	114	88	26	55	10	0	0	10	1.068
B0564-8	150	189	121	112	24	56	9	0	0	11	1.065
Cesar	0	135	77	79	31	57	0	0	0	12	1.059
Cesar	75	146	82	64	33	53	3	0	0	11	1.055
Cesar	150	172	113	102	26	54	10	0	0	9	1.055
Fabula	0	136	108	110	13	57	20	0	0	10	1.052
Fabula	75	143	113	89	15	58	20	0	0	7	1.045
Fabula	150	129	99	91	12	54	22	0	0	12	1.045
Mondial	0	150	40	41	21	25	0	0	0	54	1.053
Mondial	75	144	30	24	20	20	1	0	0	59	1.049
Mondial	150	151	37	33	20	22	1	0	0	57	1.045
Superior	0	141	104	106	17	58	15	0	0	10	1.071
Superior	75	148	113	88	18	57	18	0	0	6	1.068
Superior	150	133	104	98	20	64	14	0	0	3	1.068
GRAND MEAN		151	95								

¹ Size classes: 1's < 1 7/8"; 2's 1 7/8 to 2 1/2"; 3's 2 1/2 to 3 1/4"; 4's 3 1/4 to 4"; 5's > 4"; Culls = all defective potatoes.

² Determined by weight in air/water method.

NORTH CAROLINA Table 7b. HZPC Nitrogen Variation Potato Variety Trial, VGJREC/TRS Washington Co. Planted 3-14-00. Harvested 6-28-00 (106 DAP).

CLONE	N-Rate lb/A	Plant Data ¹			Tuber Data ¹							Internal Defects ³ (no./40 tubers)					Comments ²			
		TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR		HH	VD	BC
Atlantic	0	5	8	8	4	6	5	6	6	2	7	6	7	7	22	6	2	3	10	ECB, MS, SR
Atlantic	75	6	8	8	5	6	5	6	6	2	7	6	7	7	10	7	6	2	1	ECB, MS, SR, SS
Atlantic	150	5	8	8	5	6	5	6	6	2	7	6	7	7	10	7	1	1	2	ECB, SR, SS, MS, RZ
B0564-8	0	5	8	8	5	6	5	7	7	2	8	5	8	7	0	-	0	11	0	MS, SS, SR, RZ, ECB, SR, ID
B0564-8	75	6	8	8	5	6	5	7	7	2	8	5	8	7	0	-	0	12	0	ECB, SR, RZ, SS
B0564-8	150	6	8	8	6	6	5	7	7	2	8	5	8	7	0	-	0	8	1	SR, ^RZ, SR, SS, ECB
Cesar	0	8	8	9	7	6	6	5	7	5	8	5	7	5	8	8	0	0	2	MS, HS, EB
Cesar	75	7	8	9	7	6	6	5	7	5	8	5	7	5	3	8	1	8	0	PTS, HS, STST, MS
Cesar	150	9	9	9	7	6	6	6	5	5	8	5	7	5	1	8	0	7	0	MS, SS, SR
Fabula	0	9	9	9	7	8	5	7	7	3	7	5	7	6	19	7	0	6	0	SR, MS, HS
Fabula	75	9	8	8	8	8	5	7	7	3	7	5	7	5	10	7	0	0	0	MS, IL, ECB, STST
Fabula	150	7	8	9	8	8	5	7	7	3	7	5	7	4	6	7	0	1	0	ECB, MS, SCB
Mondial	0	8	8	9	7	6	5	5	7	5	8	1	7	1	4	7	0	1	1	SS, ID, ECB
Mondial	75	8	9	9	9	6	5	5	7	5	8	1	7	1	4	8	0	1	0	^HS, SR
Mondial	150	9	9	9	9	6	5	5	7	5	8	1	7	1	3	8	0	3	0	^HS,
Superior	0	4	8	8	4	6	6	6	7	3	6	5	7	7	2	8	0	18	3	SR, MS
Superior	75	5	8	8	4	6	6	6	7	3	6	5	7	7	0	-	0	12	4	SR, ID, MS, SS
Superior	150	5	8	8	4	6	6	6	7	3	6	5	7	7	1	8	1	20	4	MS, SR, SS, RZ

1, 2, 3 See North Carolina Table 1b.

NORTH CAROLINA Table 8a. Unreplicated Variety Trial, VGJREC/TRS Washington Co. Planted 3-13-00. Harvested 7-9-00 (118 DAP).

CLONE	Total Yield cwt/A	Marketable Yield cwt/A	% Atl.	Size Distribution by Class ¹ (% of total yield)						Specific Gravity ²
				1's	2's	3's	4's	5's	Culls	
AF2078-5	134	56	44	46	40	2	0	0	13	1.070
AF2079-7	108	29	23	26	27	0	0	0	48	1.063
AF2079-9	74	26	21	13	30	6	0	0	51	1.061
AF2081-3	101	30	24	66	30	0	0	0	4	1.066
AF2082-10	112	53	42	45	41	6	0	0	8	1.076
AF2082-12	110	80	64	24	61	12	0	0	3	1.076
AF2082-18	183	154	131	8	50	34	0	0	8	1.062
AF2082-7	104	63	54	35	58	2	0	0	4	1.067
AF2086-11	173	70	60	11	35	5	0	0	48	1.054
AF2147-1	111	29	25	6	14	12	0	0	68	1.057
ARSW96-40022-5	152	90	77	27	50	9	0	0	15	1.067
ARSW96-4661-3	249	149	127	15	50	10	0	0	25	1.064
ARSW96-584-1	144	73	62	46	47	3	0	0	3	1.061
Atlantic (std.)	204	154	100	20	56	19	0	0	5	1.067
B0718-3	240	191	152	8	45	35	0	0	12	1.048
B1316-5	257	238	189	6	62	31	0	0	2	1.077
B1322-19	231	166	132	24	60	12	0	0	4	1.065
B1649-5	145	86	68	17	56	3	0	0	24	1.062
B1768-10	204	111	57	44	49	5	0	0	2	1.072
B1768-20	145	104	53	28	62	10	0	0	1	1.064
B1783-24	139	77	40	30	42	14	0	0	15	1.073
B1801-3	182	157	81	9	58	28	0	0	5	1.065
B1801-6	192	165	85	10	48	38	0	0	5	1.064
B1806-8	208	166	86	18	56	24	0	0	2	1.066
B1816-5	168	111	57	30	59	7	0	0	4	1.062
Grand Mean	164	145								

¹ Size classes: 1's < 1 7/8"; 2's 1 7/8" to 2 1/2"; 3's 2 1/2 to 3 1/4"; 4's 3 1/4 to 4"; 5's > 4"; Culls = all defective potatoes.² Determined by weight in air/water method.

*less than 28 seed pieces per plot available, yields adjusted accordingly.

NORTH CAROLINA Table 8a. Continued.

CLONE	Total Yield cwt/A	Marketable Yield cwt/A	% Atl.	Size Distribution by Class ¹ (% of total yield)						Specific Gravity ²
				1's	2's	3's	4's	5's	Culls	
B1825-5	267	252	130	1	25	65	5	0	4	1.053
B1826-1	182	144	74	8	43	36	0	0	13	1.065
B1829-5	137	105	54	11	65	12	0	0	12	1.078
B1834-1	75	26	21	48	3	32	0	0	18	1.075
B1856-10	271	234	186	13	70	16	0	0	1	1.072
B1871-1	134	103	82	19	66	11	0	0	4	1.063
B1872-1	125	65	52	33	41	11	0	0	14	1.073
B1876-10	156	135	108	5	48	39	0	0	8	1.054
B1878-7	257	235	188	3	40	52	0	0	5	1.052
B1880-4	223	174	139	13	59	19	0	0	9	1.061
B1902-4	140	64	33	10	19	27	0	0	44	1.060
B1912-7	208	188	97	7	70	20	0	0	3	1.058
B1915-14	145	93	48	27	57	7	0	0	9	1.067
B1924-1	141	113	58	19	48	32	0	0	1	1.071
B1924-6	226	179	92	14	59	19	0	0	7	1.055
B1946-3	122	81	42	22	65	2	0	0	12	1.059
B1947-6	170	138	71	10	53	28	0	0	9	1.061
Devina	432	158	87	19	36	0	0	0	44	1.055
Bydand	227	123	68	46	49	4	0	0	1	1.062
Platina	221	186	103	9	63	21	0	0	7	1.054
ND3196-1R	142	103	57	2	32	40	0	0	26	1.059
Q174-2*	89	59	30	15	57	10	0	0	18	1.075
T10-2*	61	54	28	12	39	49	0	0	0	1.072
T11-2	166	132	113	12	67	12	0	0	8	1.051
T15-1*	93	39	20	55	43	0	0	0	2	1.066

¹ Size classes: 1's < 1 7/8"; 2's 1 7/8 to 2 1/2"; 3's 2 1/2 to 3 1/4"; 4's 3 1/4 to 4"; 5's > 4"; Culls = all defective potatoes.² Determined by weight in air/water method.

* less than 28 seed pieces per plot available, yields adjusted accordingly

NORTH CAROLINA Table 8a. Continued.

CLONE	Total Yield cwt/A	Marketable Yield cwt/A	% Atl.	Size Distribution by Class ¹ (% of total yield)						Specific Gravity ²
				1's	2's	3's	4's	5's	Culls	
T15-3*	63	24	12	59	38	0	0	0	3	1.062
T35-34	210	144	80	27	63	6	0	0	5	1.069
T35-39	154	102	56	18	58	9	0	0	15	1.077
T37-3	175	101	56	36	56	1	0	0	7	1.073
T143-3	189	153	131	7	38	43	0	0	12	1.061
T67-4	76	48	41	14	51	13	0	0	23	1.067
T78-13*	108	75	39	28	61	9	0	0	3	1.073
T88-19*	193	122	63	20	46	17	0	0	17	1.061
T88-4*	171	130	67	22	64	12	0	0	2	1.070
U106-26	96	54	30	40	56	0	0	0	3	1.063
U107-16	158	108	60	22	58	11	0	0	10	1.064
U109-6	242	169	94	25	64	6	0	0	5	1.062
U125-43	201	172	95	9	51	35	0	0	5	1.058
U125-8	205	156	86	12	55	22	0	0	12	1.065
U128-8	162	107	59	15	48	18	0	0	19	1.068
U22-6	122	38	21	69	31	0	0	0	0	1.069
U47-12	295	254	140	12	65	22	0	0	2	1.064
U47-2*	218	163	84	9	45	30	0	0	16	1.074
U47-21*	209	193	99	5	25	67	0	0	3	1.073
Grand Mean	164	145								

NORTH CAROLINA Table 8b. Unreplicated Variety Trial, VGJREC/TRS Washington Co. Planted 3-13-00. Harvested 7-9-00 (118 DAP).

CLONE	Plant Data ¹				Tuber Data ¹									Internal Defects ³ (no./40 tubers)					Comments ²
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	
AF2078-5	5	7	7	4	5	5	6	6	4	8	3	6	5	0	-	0	0	0	RZ, SS
AF2079-7	8	7	8	5	6	6	6	6	2	8	1	7	3	0	-	0	3	0	RZ, SCB, SR
AF2079-9	8	8	6	5	6	7	7	6	2	7	3	4	3	1	7	0	2	4	RZ, SCB, SR, IL's, ID
AF2081-3	6	8	8	5	6	5	6	7	3	8	2	7	5	0	-	0	1	0	
AF2082-10	5	8	5	4	6	5	7	7	2	8	3	7	5	0	-	0	1	0	SR
AF2082-12	5	8	9	4	6	6	5	6	3	7	5	7	5	0	-	0	1	0	RZ
AF2082-18	6	8	7	5	6	6	6	5	4	7	7	8	6	3	7	0	0	0	SS, SG, ECB
AF2082-7	5	7	6	4	6	6	5	7	2	8	3	7	5	0	-	0	7	0	
AF2086-11	6	8	8	5	6	5	6	5	3	7	5	4	3	1	8	0	0	0	RZ
AF2147-1	9	8	8	7	5	6	5	3	5	6	5	7	1	1	8	1	0	0	MS, PTS, SG
ARSW96-40022-5	6	7	6	5	5	5	5	7	2	8	3	7	6	0	-	0	1	0	STST, SR
ARSW96-4661-3	6	8	8	6	6	5	7	7	2	8	5	7	4	9	5	0	0	0	SS, SG
ARSW96-584-1	6	5	8	5	6	5	6	7	3	8	3	7	5	0	-	0	1	0	MS, SR, SS, ECB
Atlantic (std.)	6	8	8	5	6	5	7	7	2	6	7	7	6	18	7	1	0	0	RZ, EB, ECB, SS, DSA
B0718-3	9	9	8	8	6	6	6	3	4	8	7	2	3	0	-	1	0	0	MS
B1316-5	6	8	8	7	8	7	5	6	4	8	7	7	5	4	7	0	0	0	SS, MS, EL
B1322-19	6	8	8	5	6	6	5	5	2	7	5	8	6	0	-	0	0	0	SS, RZ
B1649-5	5	8	8	5	5	4	7	4	6	8	3	7	4	1	6	0	0	0	MS, SS
B1768-10	6	8	7	6	3	6	7	7	2	7	3	7	5	0	-	0	0	0	SS, MS, DSA, ECB
B1768-20	6	8	6	5	3	6	7	7	2	7	4	7	5	0	-	0	1	0	SIS
B1783-24	5	8	7	4	6	6	6	7	2	8	3	7	4	1	6	0	0	0	GC, RZ, EL, SR
B1801-3	6	8	6	5	7	6	6	7	3	8	6	8	7	1	8	0	0	0	MS, SS, YF2
B1801-6	6	8	6	5	7	6	5	6	3	8	6	7	6	1	8	0	1	0	GC, SS, YF3
B1806-8	6	8	7	5	7	6	7	5	2	7	5	7	6	0	-	0	0	0	SR, YF2
B1816-5	6	8	7	5	1	6	5	5	4	7	5	7	6	0	-	0	0	0	SIS, SS, YF3

1, 2, 3 See North Carolina Table 1b.

NORTH CAROLINA Table 8b. Continued.

CLONE	Plant Data ¹			Tuber Data ¹									Internal Defects ³ (no./40 tubers)				Comments ²		
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH		VR	BC
B1825-5	9	8	8	7	6	5	7	5	2	7	9	8	6	5	7	0	0	3	RZ
B1826-1	6	8	8	7	8	6	4	7	5	8	7	7	5	0	-	0	0	0	RZ, SS, MS
B1829-5	6	8	8	5	8	7	5	7	5	8	5	7	6	0	-	0	0	0	SEB, ILS, SS
B1834-1	6	8	7	5	6	6	5	7	4	7	3	7	5	1	8	0	3	0	SS, RZ
B1856-10	6	8	8	7	5	5	6	4	4	8	5	8	5	6	6	0	0	0	MS
B1871-1	5	8	6	4	6	6	7	7	2	8	3	7	6	0	-	0	1	1	ID
B1872-1	5	8	6	4	5	5	6	7	2	8	3	7	6	0	-	0	4	0	SR, SS, ECB
B1876-10	5	7	6	4	8	7	7	7	2	8	7	7	7	0	-	0	0	0	SS, SR
B1878-7	6	8	8	6	5	5	7	7	2	7	7	7	7	1	7	0	0	0	GC, MS, SR, ECB
B1880-4	6	8	8	6	6	5	7	5	2	8	5	7	5	0	-	0	0	0	RZ, SS, DSA
B1902-4	6	7	8	6	6	7	7	7	2	8	5	6	3	0	-	0	2	0	SR, GC, MS
B1912-7	6	7	8	5	5	5	5	6	5	8	6	8	6	2	7	0	0	0	SS, RZ
B1915-14	5	7	7	5	8	7	7	6	2	7	3	7	3	0	-	0	7	0	RZ, MS, SEB
B1924-1	5	5	6	5	6	7	6	5	2	8	4	7	4	1	7	1	0	1	MS
B1924-6	6	7	7	5	5	5	6	5	3	7	6	7	6	3	8	0	1	0	RZ, MS
B1946-3	6	8	6	5	6	6	6	5	4	7	3	5	4	0	-	0	0	0	RZ, SR, SS, YF1
B1947-6	6	7	8	5	2	6	7	7	2	5	5	4	4	1	8	0	0	0	Rz, SS
Devina	9	9	9	9	6	6	5	6	4	8	5	7	3	3	6	0	0	0	SG, some eye blush, YF1
Bydand	6	9	9	7	8	6	5	7	4	8	4	7	5	6	8	0	0	0	STST, MS, RZ, GC, ID
Platina	6	9	8	8	7	6	7	7	4	6	5	7	5	0	-	0	0	0	MS, RZ, YF2, SS
ND3196-1R	8	5	6	5	3	7	6	6	3	5	7	6	5	0	-	0	0	1	MS, SS, SR, STST, EB
Q174-2	5	8	7	6	6	6	5	5	5	7	5	7	3	0	-	0	0	0	RZ, MS
T10-2	4	5	6	5	6	5	7	5	2	7	3	6	5	5	7	0	0	0	EB
T11-2	8	8	8	6	3	6	7	6	2	8	5	7	6	0	-	0	0	0	RZ, SIS
T15-1	4	8	7	5	2	6	7	7	2	8	2	7	5	0	-	0	1	0	SS, ID

1, 2, 3 See North Carolina Table 1b.

NORTH CAROLINA Table 8b. Continued.

CLONE	Plant Data ¹				Tuber Data ¹										Internal Defects ³ (no./40 tubers)					Comments ²
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC		
T15-3	5	7	7	4	2	6	7	7	3	7	3	7	6	0	-	0	2	0	SR, SIS,ECB	
T35-34	6	8	7	5	5	5	7	7	2	7	3	7	5	0	-	0	0	0	SS, MS, DAE DSA	
T35-39	6	8	8	5	8	7	7	7	2	6	3	8	3	0	-	0	0	0	RZ, DSA, SCB, SR	
T37-3	6	8	8	5	8	8	7	7	2	5	3	7	5	0	-	0	0	0	SR, DAE	
T143-3	5	8	8	5	8	7	5	6	3	8	7	7	4	0	-	0	0	1	MS, SS, RZ, GC	
T67-4	7	8	8	7	8	7	6	7	2	6	3	5	3	0	-	0	0	0	RZ, MS (DSA DAE)	
T78-13	5	8	8	6	6	6	7	7	2	8	3	7	5	1	6	0	0	0	MS	
T88-19	5	8	8	6	6	5	6	5	2	7	5	7	4	0	-	0	0	0		
T88-4	5	8	8	6	6	6	5	7	2	8	5	7	5	1	5	0	0	0	GC, RZ, mDSA, mDAE	
U106-26	5	7	6	4	8	7	5	7	2	8	3	7	6	0	-	0	1	0	SR,	
U107-16	5	8	7	5	8	7	7	7	2	7	5	7	6	0	-	0	1	0	RZ, SS, SR	
U109-6	6	8	8	6	7	6	7	7	2	7	5	7	6	5	8	0	1	0		
U125-43	8	8	8	6	7	6	7	5	2	8	5	7	6	8	7	0	0	0	YF1	
U125-8	5	8	8	5	7	6	6	5	3	7	5	7	4	3	7	0	2	0	SG, MS, SIS, YF1	
U128-8	9	8	7	7	8	7	7	6	2	7	3	4	4	0	-	0	0	0	RZ, SCB, SS, STST,ECB	
U22-6	6	8	6	5	8	7	7	7	2	8	1	6	5	0	-	0	2	0	SR	
U47-12	6	6	8	7	6	6	7	5	2	7	5	7	5	7	8	0	0	0		
U47-2	8	8	8	6	7	7	7	5	4	8	5	7	4	5	7	0	0	0	MS, SR, RZ, SS	
U47-21	6	7	8	7	6	6	7	5	3	8	7	7	6	7	6	0	0	0	SS	

1, 2, 3 See North Carolina Table 1b.

NORTH DAKOTA - 1999

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Crossing and Seedling Production

In 1999, 2,177 pollinations were made in the greenhouse producing 413 seedling families. Forty-eight percent of the families had one or more late blight resistant parents. During the summer of 1999, 117,992 plants were grown for seedling tuber production: 20% of them had one or more parents with late blight resistance. Selected clones with late blight resistance in their background will be evaluated in the winter of 1999-2000 for resistance.

1st Year Selections

Approximately 118,000 red, white, and russet-skinned seedlings were grown at the Langdon Agricultural Experiment Station. Seedlings were planted May 14, 17, 18, and 19th. Evaluation and harvesting was conducted during the second full week of September.

Advanced Selections

A total of 1,234 second year selections from the 1998 seedling crop were planted at Absaraka. Of these 204 second-year selections were saved. Of the advanced material (older than 2 years), 420

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selections were planted and 202 were saved. Third year and older selections were planted at the Casselton Agronomy Seed Farm for clean seed stock production. Evaluation and selection was conducted at the irrigated site of Glyndon. Third year selections were also evaluated at the dryland site of Crookston.

Cultivar and Advanced Selection Yield Trials

Trials were conducted under dryland conditions at the Northwest Experiment Station at Crookston, MN and at the Oberg Farm at Hoople, ND. In addition, two irrigated trials were established in growers' fields near McCanna, ND and Glyndon, MN. Spacing, fertility, planting and harvest dates are listed in Table 1. The four trials, with a few entry differences, were replicates of one another. They consisted of standard and newly released varieties, and advanced NDSU, Idaho, Texas and Oregon selections. The replication across sites allowed for the assessment of the potato selections and cultivars under both dryland and irrigated conditions. Entries in each of the four sites consisted of 20 hills, replicated four times in a randomized complete block design.

Irrigated Sites

McCanna: The average total yield of the 35 entries at the McCanna site was 350 cwt/A. Average U.S. No. 1 yield was 308 cwt/A. ND 2470-27 and Red Pontiac were the highest yielding entries with U.S. No. 1 yields (cwt/acre) of 540 and 462, respectively (Table 2). ND 2470-27 is a high yielding white chipper which did not do well last year but had done well in previous years. ND 5822C-7 also yielded well with 390 cwt/A U.S. No. 1 and is one of our most promising selections.

After Red Pontiac, ND 5084-3R was the next highest-yielding red at 335 cwt/A: this selection was the highest yielding red entry at McCanna in 1997 and was second to Red Pontiac in 1998.

In the russet / long white category, Umatilla (formerly AO82611-7) and TXNS 223 (a strain of Russet Norkotah) were the highest yielding at 414 and 404 cwt/A, respectively. TXNS 112, a Texas strain of Russet Norkotah and Stampede (formerly TX 657-27Russ) followed closely with No. 1 yields of 383 and 365.

Late McCanna: Harvested 18 days after the earlier trial, the average total yield at this site was 427 cwt/A and the average U.S. No. 1 yield was 358 cwt/A (Table 3). The top yielding entry in the late trial was ATX 85404-8, a white selection from Texas with a

No. 1 yield of 478 cwt/A. Other entries that did well included TX 1385-12 Russ at 435 cwt/A and Ranger Russet at 433 cwt/A.

Glyndon: A July 3rd hail storm had a negative effect on the yields and quality at this site and therefore, they are much lower than anticipated. The average total yield of the 39 entries at this site was 197 cwt/A. Average U.S. No.1 yield was 145 cwt/A (Table 4). North Dakota selections 5822C-7 and 2470-27 were the highest yielding entries in this trial with U.S. No. 1 cwt/A of 305 and 247, respectively. Also in the top quarter of this trial was newly released Dakota Pearl (formerly ND 2676-10) at 201 right next to Snowden at 221cwt/A.

The top yielding red entry at this site was ND 5084-3R at 242 coming in just slightly ahead of Red Pontiac with a U.S. No. 1 cwt/A of 232.

In the russet category, the top yielding entry was TX 1385-12 Russ, a Texas selection, at 242 cwt/A. Closely behind that, in the top quarter of the trial, was ND 4093-4 Russ with a No. 1 yield of 179 cwt/A.

Non-Irrigated Sites

Hoople: Utilized for the first time as a dryland trial site, the average total yield for the 34 entries in the primary state trial at Hoople was 240 cwt/A. Average U.S. No. 1 yield was 204 cwt/A (Table 5). ND 5822C-7, with a yield of 383 cwt/A, was the top entry here (the top entry at the irrigated site of Glyndon also), showing that it may be able to grow well under both conditions. Also doing well in the white category were ND 2470-27 and NorValley with U.S. No. 1 cwt/A of 307 and 300.

Among red-skinned entries, the top yielding selection was ND 5084-3R with a No. 1 yield of 284 cwt/A. Also in the top 1/3 of this trial were Red Norland at 238 and ND 5256-7R at 224 cwt/A.

In the russet -skinned category the top entry was TX 1385-12 Russ at 262 followed closely by ATX 84706-2 Russ with U.S. No. 1 cwt/A of 224.

Crookston: Utilized for the second time as a dryland trial site, Crookston experienced heavy rains and as a result the trial was lost to late blight.

Summary: The overall performance of the entries at the McCanna, Hoople, Glyndon and sites have been summarized in Table 6.

Processing Trials

French Fries: Samples were tested for french fry qualities by the Food and Nutrition Department using three taste-panels comprised of six to seven panelists. Sensory characteristics evaluated were fry color, flavor and texture (Table 7). All sensory scores for these three characteristics were based on three separate evaluations of each cultivar from the McCanna (irrigated) and Crookston (dryland) sites.

Averaging the scores obtained for color, texture and flavor, allowed a relative ranking of entries (Table 7). In the irrigated trial, A 79180-10 and Norqueen tied for first place with all other entries having acceptable scores. In the dryland trial, the top two entries were North Dakota selections ND 4093-4Russ and ND 4233-1Russ. Also scoring well were the North Dakota-Oregon selection NDO 2904-7Russ and Simplot Standard Russet Burbank. All remaining samples had acceptable scores with the exception of Fianna and ND860-2.

Baking, Boiling and Microwaving: Tubers of 25 potato clones from the McCanna (irrigated) trial, 26 clones from the (irrigated) trial at McLeod, and 27 clones from the Crookston dryland trial in 1998 were evaluated for sensory characteristics in each of three cooking categories by a taste panel of seven. For baking, mealiness, color, and flavor were evaluated. Characteristics examined for boiling were color immediately and four hours after cooking, mealiness, and flavor. For microwaving, mealiness, color, and flavor were evaluated.

Two replications of sensory data were taken for each entry in each trial. The summation of scores of the 25 entries in the McCanna (irrigated) trial across all three cooking categories identified the following top 11 cultivars and advanced selections: Atlantic, ND 4027-4 Russ, A 79180-10, Russet Burbank, Dakota Pearl, ND 4778-2, Norchip, ND 5002-3R, ND 5822C-7, ND 4093-4Russ and Shepody. A similar summation of scores of the 26 entries in the McLeod (irrigated) trial identified the following top 10 cultivars and advanced selections: ND 4027-4Russ, N8-14, A 79180-10, Russet Burbank, Shepody, Atlantic, Goldrush, ND 2470-27, ND 4093-4 Russ and Russet Norkotah.

Top 10 results for the Crookston (dryland) trial were: Shepody, ND 4027-4 Russ, A 79180-10, Goldrush, Norchip, ND 2470-27, ND 3196-1R, Atlantic, Russet Norkotah and ND 4778-2.

ND 4027-4 Russ was an advanced selection which was dropped from our program primarily because it would not yield well.

Chipping: In collaboration with the East Grand Forks Potato Worksite, selections and cultivars are assessed for their resistance to the accumulation of reducing sugars following storage at 43°F (Table 8). Of the 33 entries, 13 of them chipped acceptably (Agron value >55) directly from 43°F with Dakota Pearl (formerly ND 2676-10) and NorValley receiving the top scores and ND 5822C-7 coming in acceptably at 56.

Promising Selections--Summary for 1999

White Chippers

ND5822C-7: Entered for the second time in 1999 primary state trials, this selection was the highest yielding chipping entry at both Glyndon (irrigated) and Hoople (dryland) locations, significantly outyielding all check chipping cultivars. ND5822C-7 also placed fifth at the McCanna (irrigated) site out of 35. This medium-late maturing selection produces round tubers that are slightly flat, with a high degree of uniformity. Specific gravities are high which may indicate blackspot susceptibility, but currently is unnoticed. In preliminary trials it does appear to have some cold-sweetening resistance, and was shown at the Park River site in 1998 to have resistance to Colorado potato beetle (CPB). Further CPB tests in 1999 were done in controlled cages, with results indicating moderate resistance. This is the second year this selection has done extremely well across all NDSU trial locations, thus further adaptation trials in the North Central Regional Potato Variety Trial (NCRPVT) are warranted to ascertain regional acceptance.

ND2470-27: In general, ND2470-27 has had average to above average yields in previous North Dakota trials. In 1999, it had the highest average total yield for all combined locations. At the McCanna trial, ND2470-27 significantly outyielded all other whites with a total U.S. No.1 cwt/A yield of 540. The closest competing check variety was Snowden at 404 cwt/A. ND2470-27 has cold chipping properties comparable to NorValley and could be used as tablestock with high sensory ratings for boiling, baking, and microwaving in 1995 - 1998. It is currently entered in the 1999 NCRPT. The 1998 NCRPT ranked ND2470-27 fifth among 25 entries on the basis of merit provided by each cooperator, indicating it is widely adapted. This medium maturing vine produces round, smooth, uniform tubers with excellent type.

ND5775-3: This selection is in the second year of state trial evaluation, but was only planted at the Glyndon site. Yield losses were attributed to a severe hailstorm July 3rd, and the true merit of this selection may not have been achieved. While high-yielding in the previous year, its tuber size tends to be in the smaller size category, with the majority of its tubers being <2.5" in size. It is round, smooth skinned with shallow eyes. Most noteworthy, processing trials conducted at the USDA-ARS lab indicate this selection is a superior cold-resistant clone identical to that of newly-released Dakota Pearl, but also superior to that of NorValley.

Dakota Pearl (ND2676-10): Released this past April by NDSU, Dakota Pearl is a medium maturing cultivar that produces uniform, attractive tubers, and has cold-sweetening resistance. Specific gravity is generally in the low - mid 80's. Dakota Pearl has been evaluated and has performed well under both dryland and irrigated conditions in North Dakota as well as in the 1996-1998 NCRPVT, consisting of 23 North American sites during the three-year evaluation. Combined 1999 state trial results indicate its yield potential to be slightly greater to greater than that of NorValley and Norchip, but less than the cultivar Snowden. In the past it had been noted for erratic yields that were thought to be due to poor quality seed. Higher quality seed has since been used with an associated improved performance.

ATX85404-8: Bred in Idaho, this seedling was selected in Texas. This is the first year this selection has been introduced in North Dakota yield trials, but has been included in North Dakota processing trials in 1998. Most notably, this selection exhibits cold sweetening resistance in North Dakota, and thus has the ability to chip directly from cold storage without reconditioning. It is interesting to note that ND860-2 is the male parent of this selection. ATX85404-8 has performed well across all locations when comparing yield to the standard check chip varieties, but falls below North Dakota advanced selections ND5822C-7 and ND2470-27. The tuber type is a round white with a fair general rating. Specific gravity for ATX85404-8 is in the mid to lower 90's even with supplemental irrigation.

Red Selections

ND5084-3R: Evaluated in North Dakota state trials for the fourth year in a row, ND5084-3R has exhibited consistent stable performance with an appealing yield potential. This clone outperforms standard red-skinned check varieties in terms of yield, with occasional exceptions of Red Pontiac. This year the yield advantage went to Red Pontiac, but ND5084-3R still outperformed the other standard

red check varieties Red Norland and NorDonna. It yields similarly to Red Pontiac, its tuber type and color are smoother, it has a deeper red color, and a higher percentage of U.S. No 1 yield. It also tends to have a lower percentage of tubers in the >3.5" diameter size than Red Pontiac. While it has many positive attributes, it apparently does have a weakness with respect to stolon adhesion. ND5084-3R is currently in the second year of evaluation in the NCRPVT. This selection was placed second among 25 entries in the 1998 NCRPVT on the basis of merit by each cooperator, which illustrates its wide adaptability.

ND3574-5R: Typically in the previous six years of trial testing a higher-yielding red selection, but as with most of North Dakota red selections grown in trial this year, quantity and quality fell below our expectations. ND3574-5R has round-oblong, deep red tubers with an early maturity, similar to Red Norland. ND3574-5R average U.S. No. 1 yield under irrigated and dryland conditions in 1999 was below red check varieties. Growers have commented that it seems to retain its skin pigmentation in storage without fading. It has been entered for the first time in the 1999 NCRPVT.

ND3196-1R: With a maturity similar to Red Norland, ND3196-1R has a very nice round shape and an attractive darker skin color than Red Norland. In the previous six years of yield evaluations in North Dakota state trials, ND3196-1R had comparable yield attributes to other standard red check varieties except for this year. A further decision on continued evaluations will be made this winter.

ND5256-7R: This selection was evaluated in North Dakota state trials this year for the first time. Uniformity and tuber type are its strengths, however, pale skin and susceptibility to tuber late blight are its weaknesses. Further tests with 2-4D as a skin enhancer may be warranted as a production practice for this selection. Maturity is comparable to mid/late season NorDonna. Yield data this year indicate better performance under dryland conditions, comparable with the yields of Red Norland and NorDonna.

Russets

A79180-10: This Idaho selection was the highest yielding russet at McCanna in 1996 and at McCanna, Oakes, and Park River in 1997. In the 1998 trials, its U.S. No. 1 yield across all irrigated sites was 280 cwt/A, placing it third among the entries in the russet / long white category behind Russet Norkotah and

Shepody. A79180-10 did not meet yield expectations in trials conducted in 1999. Ranking just below the average U.S. No. 1 yield of all russet/long whites category in all sites, A79180-10 did compete better than the industry standard Russet Burbank by 11 cwt. In 1995 and 1998, it had excellent french fry evaluation scores, especially coming from irrigated ground--somewhat lower but acceptable in 1996 and 1997. It has consistently scored well for sensory qualities and could be a dual-purpose selection. However, its lightly-russeted skin may limit its use for tablestock.

ND4093-4Russ: A medium maturing selection with nice tuber type and excellent russetting. In french fry sensory evaluations it is usually ranked similar to or higher (in 1998) than Russet Burbank for fry color, taste, and texture. However, its lower specific gravity, especially on irrigated soil, may limit its processing potential. Combined yields of ND 4093-4Russ in all 1999 North Dakota state trials averaged at the norm in the russet/long whites category of all sites and was consistent with Russet Norkotah. Growers in Wisconsin and the Upper Peninsula of Michigan in 1998 noted that it appeared to have resistance to common scab in their growing regions. Similar observations have been made in North Dakota and Minnesota. This is the second year ND 4093-4Russ has been entered in the NCRPVT. It ranked eighth among the 25 entries on the basis of merit rankings provided by each cooperator in 1998.

TX1385-12Russ: This late maturing Texas selection bulks rapidly late in the growing season, comparable to Russet Burbank. This selection does show adaptability and promise for producers in North Dakota in its first year of evaluation at all North Dakota sites. Its tuber type is oblong with deep eyes and very little russetting. This selection also has acceptable total solids for good processing potential with supplemental irrigations. Processing, cooking and culinary evaluations this winter will further determine its potential.

Umatilla: Released in 1998 as a late maturing cultivar from the USDA-ARS and Oregon. Results from North Dakota trials indicate yield potential is obtained midseason. The McCanna early trial harvested at 117 days yielded 465 cwt/A, whereas, the McCanna late trial harvested at 135 days yielded 474 cwt/A. Unlike many North Dakota bred cultivars Umatilla's gravity does not seem to be affected by irrigation, remaining at or near 90. Tubers are well- russetted, attractive and uniform.

Germplasm Enhancement Update

A major objective of the NDSU breeding program is the incorporation of resistance to the newer genotypes of *Phytophthora infestans*, such as the US-8 genotype that predominates in North Dakota. Crosses utilizing parents with genetic resistance to late blight continued this past winter and their progeny were grown in the greenhouse this past summer. Several new sources of late blight resistance were incorporated into the crossing program.

Late blight resistance was also evaluated in the greenhouse: 416 individuals were tested, of which approximately 210 were early generation, 2nd year seedlings. Of the 210 individuals, 25 exhibited moderate resistance and 14 exhibited high resistance. Sixteen percent of all individuals tested had some resistance to late blight.

Field testing of material for late blight resistance also was conducted at Glyndon, MN this past summer in collaboration with NDSU Plant Pathology. Plots at Glyndon were planted May 13th-18th with greenhouse-grown plants inoculated with the US-8 genotype, to act as a source of inoculum in the field. The entire field was then irrigated that same night to aid in the development of the disease. Late blight was observed on August 3, allowing differentiation among clones for resistance and susceptibility.

Twenty entries, consisting of selected ND breeding clones with one or more resistant parents and potato clones with known resistance to late blight, were evaluated as 5 hill unreplicated plots. Readings were taken of percent necrotic tissue on September 2 (the last reading) with some clones showing very good to excellent resistance. The most resistant clones were 6940B-25 Russ (B0692-4 x 4233-1 Russ), 6947B-20 (B0718-3 x 5250-8), 6948B-7 (B0767-2 x Russet Norkotah), 6961B-1R (J138-A12 x NDO 2438-6R), 6588B-13 (J101-K27 x 5433-2), BND 1849-2 (J138-A12 x B1419-6) and Stirling.

Twelve entries were also evaluated in a replicated trial, the results of which are presented in Figure 1. As in the 5 hill unreplicated plots, the entries in the replicated trial displayed a range of resistance and susceptibility. Most notably resistant were ND 6489B-3 (Erasmio x 5250-8) and ND6592B-10 (J136 x 860-2). These clones, as well as the ones in the previous paragraph, will be used as parents in the 2000 crossing program.

The breeding program is also incorporating genetic resistance to *Verticillium* wilt, early blight, silver

scurf, PLRV, PVY, green peach aphid and Colorado potato beetle into commercially-acceptable clones. ND5822C-7 is an example of our efforts in this area. Identified as resistant to Colorado potato beetle in screenings by Drs. Lorenzen and Balbyshev and in the 1998 Park River screening trial, ND5822C-7, is also noted for its yield and tuber-type in the 1998 and 1999 yield trials. It displayed moderate resistance in 1999.

In addition, the report that follows updates their efforts in germplasm enhancement. It was contributed by Jim Lorenzen, Nikolay Balbyshev, Abbas Lafta, Wayne Larson, Boris Sagredo and Malay Saha.

Segregating populations were made by crossing selected genotypes from wild species that were resistant to cold-sweetening and *Verticillium*, or cold-sweetening, *Verticillium*, and late blight. Progeny genotypes were scored for resistance to each of these conditions. Genetic maps were made for two populations using AFLP (amplified fragment length polymorphisms). DNA markers were found that are associated with each of the desired resistances. Additional crosses were made for fine mapping of the late blight and cold-sweetening resistance derived from *Solanum microdontum*, and for introgression of these useful traits into superior adapted selections for breeding.

North Dakota Table 1. Spacing, fertilizer, soil type, planting and harvest dates of the 1999 North Dakota potato variety trial sites.

Spacing							
Location	Row	Plant	Fertilizer Applied	Soil Types	Planting Date	Vinekill	Total Growing Days
Crookston	36"	12"	preplant= 75 lbs/A N 40 lbs/A P2O5	Wheatville prairie fine sandy loam	5-27	9-9	106
McCanna	36"	10.25"	preplant=150 lbs/A P2O5, 60 lbs/A of K2O, copper sulfate @1/2 pint/A, Sidedress of 28-0-0 @ 15 gal/A, fertigation of 28-0-0 7 times during season.		both 4-29	8-23 early 9-10 late	117 early 135 late
Glyndon	36"	10.25"	132 lbs/A N, 88 lbs/A P in furrow at planting, 60 lbs/A of P2O2, 100 lbs/ A Of K2O		5-12	9-13	125
Hoople	36"	12"	preplant 82 lbs/A N, in furrow 16lbs/A N, 64lbs/A P2O2, 32 lbs/A K2O		4-30	8-22	115

Note: The North Dakota advanced selections described in these trials can be distinguished as russet, red, or white-skinned by :

ND5555-5 = white

ND5555-5R = red

ND5555-5Russ = russet

North Dakota Table 2. Performance of potato cultivars and advanced selections under irrigated conditions (early) at McCanna, ND--1999.

Variety/Selection	Yield (cwt/acre)		% U.S. No. 1	Tuber Categories as % of Total Yield					Specific Gravity
	U.S. # 1a	Total		Cullage	< 2 "	2 - 2.5 "	2.5-3.0"	>3.0"	
ND2470-27	540 a	567	95	1	4	14	26	55	1.077
Red Pontiac	462 ab	508	91	6	3	12	19	60	1.064
Umatilla	414 bc	465	89	6	5	30	43	15	1.086
Snowden	404 bcd	423	96	1	4	25	38	33	1.093
TXNS 223	404 bcd	442	91	4	5	25	29	37	1.076
ND5822C-7	390 bcde	426	92	1	7	29	37	25	1.094
TXNS 112	383 bcde	421	91	3	6	31	31	29	1.074
ATX85404-8	379 bcde	424	89	3	8	28	25	36	1.084
Stampede	365 bcde	431	85	8	7	21	21	42	1.079
ATX84706-2 Russ	359 bcdef	376	96	2	3	10	14	72	1.07
Russet Norkotah	359 bcdef	403	89	3	8	33	35	21	1.075
Shepody	353 bcdefg	420	84	12	4	21	30	33	1.079
ND5084-3R	335 bcdefgh	361	93	3	4	15	16	61	1.061
Atlantic	325 cdefgh	358	91	4	5	20	27	43	1.094
TX1385-12 Russ	320 cdefgh	345	93	2	6	18	23	52	1.084
Ranger	312 cdefgh	352	89	2	9	52	25	12	1.09
NorDonna	312 cdefgh	333	94	1	5	20	37	37	1.065
Russet Burbank #2	299 cdefgh	415	72	9	19	50	18	4	1.09
TXNS 278	298 cdefghi	324	92	3	5	21	31	40	1.082
Red Norland	282 defghi	325	87	9	5	22	30	35	1.06
ND3574-5 R	280 defghi	317	89	7	5	18	22	49	1.054
Dakota Pearl	279 defghi	305	91	3	6	26	26	39	1.076
Russet Burbank	276 defghi	414	67	25	8	33	28	6	1.081
ND2937-3R	274 defghi	309	89	1	11	45	27	17	1.073
ND4093-4Russ	273 defghi	303	90	2	8	26	23	41	1.075
ND5256-7R	269 efghi	347	78	5	17	41	29	7	1.072
Norchip	265 efghi	324	82	9	9	36	27	19	1.077
ND3196-1R	233 fghi	275	85	11	4	20	16	49	1.068
NorValley	232 fghi	278	83	4	13	23	27	34	1.08
Gem Russet	225 ghij	258	87	2	11	44	33	10	1.086
NDO2904-7 Russ	214 hij	253	85	10	6	19	16	50	1.064
A79180-10	209 hij	238	88	6	6	27	36	24	1.088
Bannock Russet	177 ij	206	86	4	10	33	31	21	1.074
Legend	173 ij	193	89	4	6	42	43	4	1.088
ND5002-3R	109 j	123	88	0	12	48	29	11	1.059

a Yield means with the same letter are not considered significantly different from one another based on Duncan's multiple range test with an alpha value of 0.05.

North Dakota Table 3. Performance of potato cultivars under irrigated conditions (Late) at McCanna, ND--1999

Variety/Selection	Yield (cwt/acre)		% U.S. No. 1	Tuber Categories as % of Total Yield			Specific Gravity	% Internal Defects ^b	
	U.S.# 1a	Total		Cullage <2"	2 - 2.5" 2.5-3.5"	>3.5"		HH/BC	VD
ATX 85404-8	478 a	537	89	8	12	38	1.088	10	0
TX1385-12 Russ	435 ab	495	88	5	8	52	1.080	6	0
Ranger	433 ab	498	87	7	15	15	1.099	3	0
ATX 84706-2Russ	429 ab	458	94	2	4	74	1.075	9	0
TXNS 223	427 ab	500	85	6	7	39	1.072	15	0
TXNS 278	417 ab	499	84	6	7	49	1.076	5	0
TXNS 112	413 ab	471	88	5	9	48	1.080	18	0
Innovator	409 ab	530	77	4	9	30	1.084	0	0
Stampede	404 ab	495	82	10	8	40	1.093	5	0
Shepody	403 ab	517	78	4	5	45	1.087	5	0
Russet Burbank	399 ab	551	72	9	22	12	1.080	12	0
Bannock Russet	352 bc	389	90	7	13	31	1.075	17	0
A79180-10	349 bc	394	89	6	7	41	1.094	1	0
Victoria	349 bc	440	79	7	15	21	1.081	1	0
Gem Russet	344 bc	386	89	9	13	26	1.087	16	0
NDO 2904-7 Rus	342 bc	369	93	3	5	50	1.074	0	0
Umatilla	337 bc	474	71	7	11	29	1.091	5	0
ND4093-4 Russ	282 cd	305	92	5	5	48	1.079	5	0
Russet Norkotah	265 cd	316	84	13	17	28	1.072	2	0
AND92475-2Russ	253 cd	302	84	13	17	20	1.075	9	1
Legend	249 cd	265	94	3	8	38	1.094	18	0
Gallia	247 cd	379	65	26	29	3	1.073	0	0
ND5343-1 Russ	213 d	254	84	15	17	19	1.084	16	0

a See North Dakota Table 2.

b Internal Defects abbreviations: HH/BC = Hollow Heart or Brown Center, VD = Vascular Discoloration, and IBS = Internal Brown Spot.

Values represent the percentage of 24 tubers (2.5-3.5" in size) that had the internal defect

North Dakota Table 4. Performance of potato cultivars and advanced selections under irrigated conditions at Glyndon, MN --1999

Variety/Selection	Yield (cwt/acre)		% U.S. No. 1	Tuber Categories as % of Total Yield					Specific Gravity
	U.S.# 1a	Total		Cullage	<2"	2 - 2.5 "	2.5-3.0"	>3.0"	
ND5822C-7	305 a	344	89	5	9	18	58	13	1.096
ND2470-27	247 b	289	85	2	13	21	44	20	1.086
ND5084-3R	242 bc	273	89	1	5	9	33	46	1.068
TX1385-12Russ	242 bc	269	90	0	6	12	44	33	1.079
Red Pontiac	231 bc	295	79	3	7	13	44	22	1.062
Atlantic	229 bc	270	85	6	9	14	43	28	1.094
Snowden	221 bcd	243	91	1	8	19	53	19	1.086
Dakota Pearl	200 bcde	241	83	3	15	32	46	5	1.091
ND4093-4Russ	179 cdef	237	76	11	17	30	35	11	1.064
Bannock Russet	164 defg	217	76	20	21	28	43	4	1.088
ND4778-2	162 defg	196	83	16	15	18	57	7	1.088
Stampede	154 efgh	220	70	32	21	28	37	5	1.080
ATX84706-2Russ	148 efgh	174	85	1	11	14	44	27	1.077
Red Norland	142 efgh	211	67	9	12	15	42	11	1.066
NDO2904-7Russ	140 efgh	181	78	1	14	18	41	19	1.062
ND3574-5R	139 efghi	169	82	12	11	17	41	24	1.060
ND2676-12	138 efghi	204	68	17	30	29	34	5	1.086
ATX85404-8	136 efghi	196	69	1	26	21	41	7	1.073
Ranger	135 efghi	220	61	4	27	34	27	0	1.080
Umatilla	134 efghi	218	62	3	23	26	32	4	1.084
TXNS 278	130 fghij	199	66	8	27	28	34	4	1.077
ND5256-7R	128 fghij	189	68	5	28	24	43	1	1.072
Norchip	127 fghij	181	70	11	24	33	33	4	1.087
ND4233-1Russ	126 fghij	157	80	9	16	20	47	14	1.075
A79180-10	124 fghij	151	82	10	16	19	50	13	1.087
Gem Russet	120 fghijk	191	63	2	37	33	30	0	1.087
NorValley	120 fghijk	175	69	2	27	28	37	4	1.08
ND3196-1R	115 fghijk	169	68	12	20	24	41	2	1.075
NorDonna	114 fghijk	180	63	7	36	24	38	2	1.07
Shepody	112 fghijk	179	63	10	27	35	27	1	1.082
TXNS 223	109 ghijk	151	72	4	18	23	41	9	1.055
ND4240-9Russ	100 ghijk	157	64	12	24	28	35	1	1.068
ND5775-3	96 ghijk	145	67	3	32	33	32	1	1.09
Russet Norkotah	92 hijkl	113	82	0	34	36	41	5	1.062
TXNS 112	89 hijkl	160	56	11	32	31	25	0	1.06
Legend	71 ijkl	112	64	7	21	27	33	4	1.072
ND5498-2Russ	63 jkl	142	45	8	48	34	10	0	1.084
ND5002-3R	56 kl	87	64	1	35	35	30	0	1.075
Russet Burbank	41 l	155	27	5	27	17	10	0	1.075

a See North Dakota Table 2.

North Dakota Table 5. Performance of potato cultivars and advanced selections under dryland conditions at Hoople, ND--1999.

Variety/Selection	Yield (cwt/acre)		% U.S. No. 1	Tuber Categories as % of Total Yield					Specific Gravity
	U.S.# 1a	Total		Cullage	<2"	2 - 2.5 "	2.5-3.0"	>3.0"	
ND5822C-7	382 a	415	92	0	8	32	42	17	1.105
Red Pontiac	362 ab	395	92	2	7	18	28	46	1.079
ND2470-27	307 abc	332	92	1	6	33	39	21	1.097
NorValley	300 bc	335	90	4	6	24	41	25	1.09
ND5084-3R	284 cd	300	95	1	4	10	20	64	1.073
Atlantic	268 cde	286	94	0	6	36	35	23	1.113
TX1385-12Russ	262 cdef	284	92	2	6	25	26	41	1.09
ATX85404-8	244 cdefg	273	89	0	11	41	29	19	1.1
Red Norland	230 defgh	263	88	9	4	25	33	30	1.074
ATX84706-2Russ	224 defghi	249	90	6	4	13	22	54	1.09
ND5256-7R	224 defghi	259	86	0	13	52	29	5	1.08
Norchip	222 defghi	250	89	1	10	55	31	3	1.09
Dakota Pearl	218 defghij	236	93	1	6	33	42	18	1.093
Snowden	218 defghij	242	90	0	10	61	27	2	1.101
Stampede	206 efghij	231	89	1	10	40	32	17	1.094
NorDonna	200 efghijk	225	89	1	11	52	28	8	1.083
Shepody	194 fghijkl	234	83	7	10	44	29	10	1.09
ND2937-3R	191 fghijklm	229	84	1	16	54	25	4	1.089
Gem Russet	189 ghijklm	250	75	2	23	59	16	1	1.098
A79180-10	181 ghijklm	225	80	5	15	48	29	4	1.101
ND3574-5R	180 ghijklm	192	94	0	6	37	37	20	1.072
Ranger	176 ghijklm	215	82	0	18	61	17	3	1.101
TXNS 278	169 hijklmn	216	78	5	17	51	18	10	1.084
Umatilla	166 hijklmn	257	65	3	32	56	6	2	1.091
Russet Burbank	162 hijklmn	277	59	23	18	35	16	8	1.08
ND3196-1R	158 ijklmno	169	93	2	5	38	35	20	1.076
NDO2904-7Russ	157 ijklmno	179	88	3	9	31	30	26	1.073
TXNS 223	148 jklmno	197	74	2	24	45	23	5	1.081
TXNS 112	147 jklmno	196	75	4	22	57	14	4	1.083
Russet Norkotah	133 klmno	190	70	2	28	51	15	3	1.087
ND4093-4Russ	125 lmno	149	84	1	15	51	27	6	1.082
Bannock Russet	121 mno	173	70	1	29	60	10	0	1.083
ND5002-3R	103 no	122	85	1	14	41	21	23	1.075
Legend	92 o	125	73	13	14	36	19	17	1.083

a See North Dakota Table 2.

North Dakota Table 6. Summary of U.S. No. 1 yields (cwt/A) in primary trials at all sites.

(Early)		Irrigated Sites		Non-Irrigated	Avg. Yield
Clone	McCanna	Glyndon	Average	Hoople	At All Sites
Whites					
ND2470-27	540	247	394	307	365
ND5822C-7	390	305	348	382	359
Snowden	404	221	313	218	281
Atlantic	325	229	277	268	274
ATX85404-8	379	136	258	244	253
Dakota Pearl	279	200	240	218	232
NorValley	232	120	176	300	217
Norchip	265	127	196	222	205
ND4778-2		162			
ND2676-12		138			
ND5775-3		96			
Average Yield of White Entries	352	180		270	
Reds					
Red Pontiac	462	231	347	362	352
ND5084-3R	335	242	289	284	287
Red Norland	282	142	212	230	218
NorDonna	312	114	213	200	209
ND5256-7R	269	128	199	224	207
ND3574-5R	280	139	210	180	200
ND3196-1R	233	115	174	158	169
ND5002-3R	109	56	83	103	89
ND 2937-3R	274			191	
Average Yield of Red Entries	284	146		215	
Russets / Long Whites					
TX1385-12Russ	320	242	281	262	275
ATX84706-2Russ	359	148	254	224	244
Stampede	365	154	260	206	242
Umatilla	414	134	274	166	238
Shepody	353	112	233	194	220
TXNS 223	404	109	257	148	220
Ranger	312	135	224	176	208
TXNS 112	383	89	236	148	207
TXNS 278	298	130	214	169	199
Russet Norkotah	359	92	226	125	192
ND4093-4Russ	273	179	226	125	192
Gem Russet	225	120	173	189	178
A79180-10	209	124	167	181	171
NDO2904-7Russ	214	140	177	157	170
Russet Burbank	276	41	159	162	160
Bannock Russet	177	164	171	121	154
Legend	173	71	121	92	112
ND4233-1Russ		126			
ND4240-9Russ		100			
ND5498-2Russ		63			
Ave. Yield of Russ / Long Whites	301	124		168	
Average U.S. No.1					
Yield At Sites:	308	148		203	

North Dakota Table 7: Average french fry evaluation scores for the 1998 season.

Cultivar or Selection	Color	Texture	Flavor	Combined Sensory Score ¹
Irrigated Site				
*REFER TO RATING GUIDE BELOW				
A79180-10	7.1	6.7	6.4	6.7
Norqueen Russet	6.8	6.6	6.8	6.7
Goldrush	6.5	6.4	6.7	6.5
ND 4027-4 Russ	5.9	6.5	6.8	6.4
Russet Burbank	5.8	6.6	5.8	6.1
ND 4093-4 Russ	5.6	6.2	6.3	6.0
Russet Norkotah	4.2	5.6	5.3	5.0
Dryland Site				
ND 4093-4 Russ	8	7.2	7.2	7.5
ND 4233-1 Russ	7.5	6.9	6.8	7.1
NDO 2904-7 Russ	7.3	6.8	6.8	7.0
Simplot Std Russet Burbank	7.4	6.9	6.6	7.0
ND 5498-2 Russ	7.2	6.8	6.6	6.9
ND 4240-9 Russ	6.9	6.6	6.9	6.8
ND 5343-1 Russ	6.9	6.7	6.6	6.7
Norqueen Russet	6.5	6.7	6.8	6.7
Victoria	6.7	6.6	6.6	6.6
ND 4219-14 Russ	6.3	6.4	6.5	6.4
Shepody	7.6	5.8	5.8	6.4
ND 5286-1 Russ	6.2	6.3	6.5	6.3
A79180-10	6.9	5.4	6.2	6.2
ND 4027-4 Russ	5.4	6.3	6	5.9
Innovator	5.5	6.1	6	5.9
NDO 840-1 Russ	5.2	6	5.7	5.6
ND 2667-9 Russ	5.1	5.8	5.6	5.5
Fianna	2.8	4.4	4.5	3.9
ND 860-2	2.2	4.7	3.5	3.5
¹ Combined Sensory Score is the average of the three ratings for color, texture, and taste.				
*Rating Guide				
	7-9	Good		
	5-6	Fair, and acceptable		
	1-4	Poor, not acceptable		

North Dakota Table 8. Chipping evaluation of cultivars and selections grown at three North Dakota 1998

state trial sites [McCanna, ND; McLeod, ND; and Crookston, MN].

Variety or Selection	First Chipping:	Second Chipping:	Third Chipping:
	Direct Chip from 43oF1	Two Weeks Reconditioning2	Four Weeks Reconditioning3
	Agtron Reading4		
ND2470-27	58	61	60
ND4027-4Russ	49	56	55
ND4093-4Russ	49	58	56
ND4778-2	60	60	58
ND5775-3	59	62	59
ND5822C-7	56	62	60
A79180-10	42	52	53
Dakota Pearl	62	61	60
Atlantic	53	59	57
Goldrush	49	53	53
Norchip	57	60	58
NorValley	62	63	62
Russet Burbank	46	53	56
Russet Norkotah	46	54	56
Shepody	49	52	58
Snowden	59	61	59

Single Site Texas European Varieties Grown at McLeod, ND.

NorValley	63	66	63
Flanna	57	54	60
Dali	43	51	48
Romina	62	62	59
TXNS 278	49	55	54
Shepody	55	59	55
Amadeus	41	47	45
Latona	47	59	57
Morning Gold	52	53	54
Russet Norkotah	47	55	58
Innovator	53	58	56
Norchip	59	60	58
Russet Burbank	48	54	55
Ceasar	45	55	54
Picasso	41	48	48
Victoria	56	61	59
Symfonia	45	49	54

1 Stored for 4 weeks at 43oF

4 Agtron 0-90

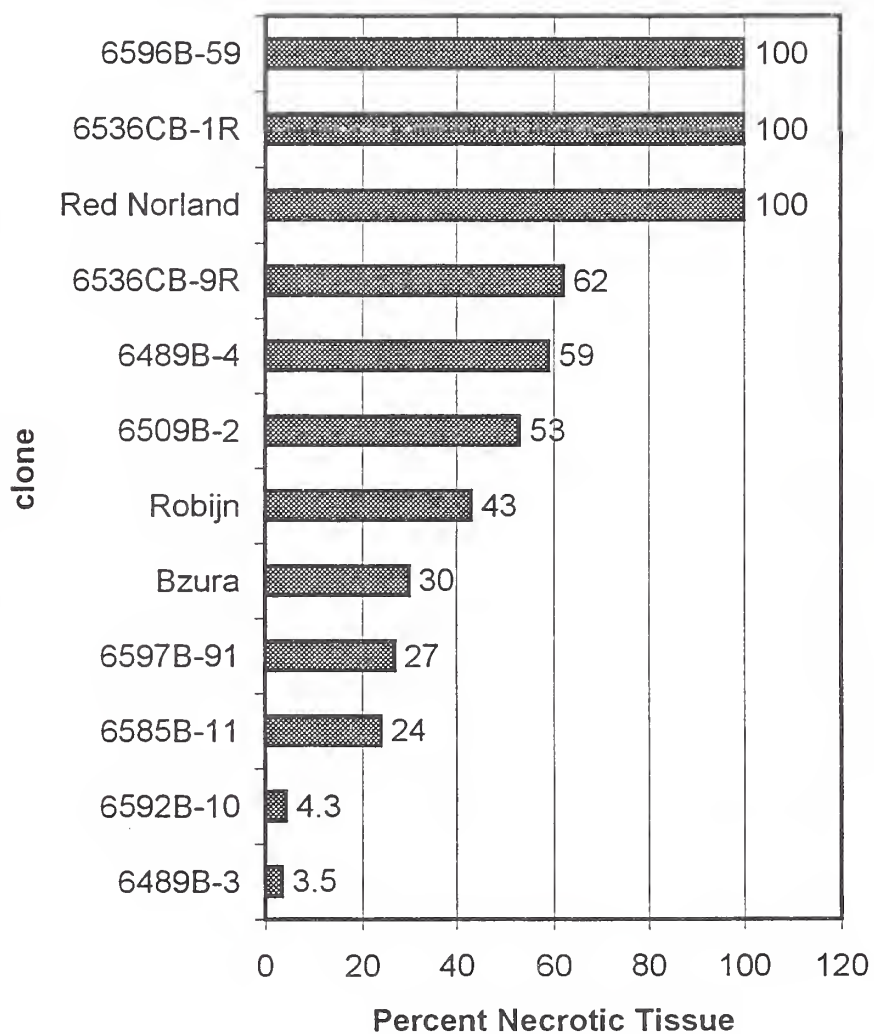
2 Stored for 4 weeks at 43oF, Reconditioned for 2 weeks at 65oF

0=Black; 90=white

3 Stored for 4 weeks at 43oF, Reconditioned for 4 weeks at 65oF

55=minimum acceptable color

Late Blight Screening, Glyndon, MN--1999.



North Dakota Figure 1. Resistance/susceptibility of potato clones at Glyndon, Mn--1999. Data based on final reading of September 2.

NORTH DAKOTA - 2000

Bryce Farnsworth¹, Mike Schwalbe¹, and Ann Erickson¹, in cooperation with Neil Gudmestad², Gary Secor², Edna Holm³, Jim Lorenzen¹, Marty Glynn⁴, Duane Preston⁵, and Joe Sowokinos⁶.

Crossing and Seedling Production

In 2000, 1,875 pollinations were made in the greenhouse, producing 163 seedling families. Forty-seven percent of the families had one or more parents that were identified as having late blight resistance. A total of 93,056 plants were grown out for seedling tuber production. Twenty-eight percent of the seedlings planted for tuber production in 2000 had one or more parents with late blight resistance. Selected clones with late blight resistance in their background will be evaluated in the winter of 2000-2001 for resistance.

1st Year Selections

Approximately 122,000 red, white and russet-skinned seedlings were grown at the Langdon Agricultural Experiment Station. Seedlings were planted 15-18 May at Langdon, ND. Evaluation and harvesting was conducted 18-21 September.

Advanced Selections

A total of 1,334 second year selections from the 1999 seedling crop were planted at Absaraka and Crookston. A total of 160 second-year selections were saved at harvest. Of the advanced material

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older than 2nd year), 392 selections were planted and 172 were saved at harvest. Third year and older selections were planted at the Casselton Agronomy Seed Farm for clean seed stock production. Evaluation of second, third and fourth year selections were conducted at the dryland site of Crookston. Evaluation was also done under irrigation at Dawson. Selection of 3rd year material was also done under dryland conditions at Hoople. Early summer flooding destroyed most of the Casselton planting. An extra greenhouse planting was made to begin to multiply these selections for next year's seed production.

Cultivar and Advanced Selection Yield Trials

Trials were conducted under dryland conditions at the Northwest Experiment Station at Crookston, MN and at the Lloyd and Steve Oberg farm at Hoople, ND. In addition, two irrigated trials were established near Larimore and Dawson, ND. Spacing, fertility, planting and harvest dates are listed in Table 1. Three of the four trials, with a few entry differences, were replicates of one another. Dawson had several entries for which seed was not available for more trials. They consisted of standard and newly released varieties, and advanced NDSU, Idaho, Texas and Oregon potato selections and cultivars under both dryland and irrigated conditions. Entries in each of the four sites consisted of 20 hills, replicated four times in a randomized complete block design.

Irrigated Sites

Larimore: The average total yield of the 34 entries at the Larimore site was 268 cwt/A. Average U.S. No. 1 yield was 237 cwt/A. Red Pontiac and TXNS-296 (a strain of Russet Norkotah) were the highest yielding entries with U.S. No. 1 yields of 327 and 308 cwt/A, respectively (Table 2). Yields at Larimore were adversely affected by the 20+ inch rainfall in June.

After Red Pontiac, Red La Soda was the next highest-yielding red at 281 cwt/A U.S. No. 1 yield. Also placing in the top 1/3 of this trial was Red Norland at 253 and ND3574-5R at 246 cwt/A.

Among the white chipping entries, ND5822C-7 performed the best with 254 cwt/A U.S. No. 1 yield; two other chipping selections also did well (ND2470-27 and Dakota Pearl) at 242 and 236 cwt/A, respectively.

In the russet/long white category, four Texas Russet Norkotah strains were the top yielding clones: TXNS-296 at 308, TXNS-223 at 300, TXNS-278 at

299 and TXNS-102 at 283 cwt/A U.S. No. 1 yields. Russet Norkotah followed very closely at 277 cwt/A.

Dawson: The average total yield of the 46 entries at Dawson was 412 cwt/A. Average U.S. No. 1 yield was 332 cwt/A (Table 3).

The five top yielding clones in this trial were Red La Soda, TXNS-223, A79180-10, TXNS-112 and ATX84706-2 Russ.

Red entries topped the yield of all entries at Dawson with Red La Soda at 444 cwt/A U.S. No. 1 yield. This was followed by Red Norland at 400, ND5084-3R at 364, NDTX731-1R at 332, and Red Pontiac at 327 cwt/A.

White entries ranked somewhat lower with the highest U.S. No. 1 yield being ND5822C-7 at 400 cwt/A followed by Stirling (a Scottish variety which so far has not shown chipping ability) at 373, NVT-719 (a transformed selection of NorValley) at 345, Norchip at 337, and NorValley at 329 cwt/A.

Russet entries were led by TXNS-223 at 427 cwt/A U.S. No.1 yield, followed by A79180-10 at 424, TXNS-112 at 418, ATX84706-2Russ at 417 and A8792-1 at 401 cwt/A. TXNS-223 and TXNS-112 are Russet Norkotah selections, A79180-10 and A8792-1 are russet selections from Idaho and ATX84706-2Russ is an Idaho seedling that was selected in Texas.

Dryland Sites

Hoople: The Hoople site was adversely affected by extremely dry conditions in the early part of the season. Utilized for the second time as a dryland trial site, the average total yield for the 31 entries was 142 cwt/A. Average U.S. No.1 yield was 111 cwt/A (Table 4). The top entries here were Red La Soda with a U.S. No.1 yield of 184 and ND5084-3R at 166 cwt/A, which also performed well in this trial last year. These two were closely followed by A92657-1R, a red selection from the Idaho breeding program. Finishing first and second in the white chipping category were NorValley with a U.S. No. 1 yield of 163 followed closely by ND5822C-7 at 154 cwt/A and ATX85404-8 and ND2470-27 at 150 cwt/A each.

In the russet/long white category the top entries were TXA549-1Russ at 127 cwt/A followed by Goldrush at 126 cwt/A.

Crookston: The average total yield for this trial was 299 cwt/A, while the average U.S. No. 1 yield was

255 cwt/A (Table 5). The top two entries here were Goldrush with a U.S. No. 1 yield of 325 cwt/A and NorValley with 316 cwt/A.

Also doing well in the russet/long white category was long time standard Russet Norkotah at 313 cwt/A.

Other top white entries include Atlantic at 312 cwt/A and ND2470-27 with a U.S. No. 1 yield of 279 cwt/A.

In the red category there were several entries quite close to each other in the top 1/3 of this trial. These included Red La Soda in first place with a U.S. No. 1 yield of 310 cwt/A followed closely by ND5084-3R at 303 cwt/A and ND5256-7R at 285 cwt/A. ND3574-5R, which finished as the top yielding red in this trial in 1998, followed at 274 cwt/A.

Summary: The overall performance of the entries at the McCanna, Dawson, Hoople and Crookston sites have been summarized in Table 6.

Processing Trials

French Fries: Samples were tested for French fry qualities by the Food and Nutrition Department using two taste-panels comprised of six to seven panelists. Sensory characteristics evaluated were fry color, flavor and texture (Table 7). All sensory scores for these characteristics were based on 3 separate evaluations of each cultivar from the McCanna (irrigated) and Hoople (dryland) sites.

Averaging the scores obtained for color, texture and flavor allowed a relative ranking of entries (Table 7). In the irrigated trial at McCanna, Gem Russet and Stampede Russet were the top two entries with all others having acceptable scores. In the dryland trial at Hoople, TX1385-12Russ and Legend Russet took first and second place. Scoring well at both the irrigated site and at the dryland site was Bannock Russet. All remaining samples had acceptable scores.

Baking, Boiling and Microwaving: Tubers of 35 potato clones from the Larimore (irrigated) trial and 34 clones from the (dryland) trial at Hoople in 1999 were evaluated for the following sensory characteristics in each of three cooking categories by a taste panel of five to six individuals.

Boiling: Characteristics examined were sloughing, color immediately after cooking, color four hours after cooking, mealiness, and flavor.

Baking: Mealiness, color, and flavor were evaluated.

Microwaving: Mealiness, color, and flavor were evaluated.

Two replications of sensory data were taken for each entry in each trial. The summation of scores of the 34 entries in the Hoople (dryland) trial across all three cooking categories identified these top five entries in each of 3 classes of potatoes: Reds: ND2937-3R, Red Pontiac, ND3196-1R, ND5256-7R and Red Norland. Whites: Atlantic, ND2470-27, NorValley, Dakota Pearl and Snowden. Russets/Long Whites: Ranger, Gem Russet, Russet Burbank, Legend, and A79180-10.

In the Larimore (irrigated) trial, a similar summation of scores of the 35 entries identified the following top 5 entries in the 3 classes of potatoes: Reds: ND5256-7R, ND3196-1R, ND2937-3R, Red Pontiac and Red Norland. Whites: Atlantic, Dakota Pearl, ATX85404-8, Norchip, and NorValley. Russets/Long Whites: Gem Russet, A79180-10, Ranger, Legend and Shepody.

Shepody, A79180-10, ND3196-1R, Atlantic and Russet Burbank have also been in the top ten for sensory evaluations in each of the previous 2 years.

Chipping: In collaboration with the East Grand Forks Potato Worksite, selections and cultivars are assessed for their resistance to the accumulation of reducing sugars following storage at 43°F (Table 8). Of the 26 entries, 5 of them chipped acceptably (Agtron value > 55) directly from 43°F with ATX85404-8 and Snowden receiving the top scores. Dakota Pearl, NorValley and ND2470-27 also chipped acceptably at 43°. After two weeks of reconditioning at 65°, five more of the 26 entries chipped acceptably: Bannock Russet, Legend Russet, Norchip, Ranger Russet and ATX84706-2 Russ. After four weeks of reconditioning, ND5822C-7 chipped acceptably and Ranger and ATX84706-2 Russ no longer chipped acceptably. No more entries gained acceptable color.

Promising Selections--Summary for 2000

White Chippers

ND5822C-7 (ND4103-2 X Dakota Pearl): Its full season, vigorous vine gives this selection exceptional yield potential. Attractive tubers have medium deep eyes, white flesh and high specific gravity. Uniform, slightly flattened, high setting tubers are mostly in the 2.0 to 2.5 inch diameter category, slightly smaller than NorValley and Norchip but larger than Dakota

Pearl. In preliminary trials last year, ND5822C-7 produced acceptable chip quality with reconditioning. In 1998 trials, it produced acceptable chip color out of cold storage. ND5822C-7 has been shown to have good resistance to Colorado potato beetle. In state trials this year, it was the highest yielding white entry overall. An additional trial in Nebraska indicated it to be a superior chipping cultivar. Efforts are being made to enter it in the North Central Regional Potato Variety Trial (NCRPVT) to determine its potential across more environments. The NCRPVT consists of 11 cooperators from different states and provinces throughout our region.

ND2470-27 (Yankee Chipper X Norchip): This mid-season maturing vine throws slightly oblong, smooth, uniform tubers in the 2.5 to 3.0 inch diameter category, comparable to NorValley in exhibiting excellent type and yield potential. Tubers are typically free of scab and Rhizoctonia, but not as resistant as Dakota Pearl. This widely adapted clone not only performs well in state and regional trials, but was also very good in Maine, Pennsylvania, and Washington in the 1999 Snack Food Association (SFA) Chip Trials. Long-term storage of the 1999 crop produced superior chip quality noted both by the SFA variety trials and NDSU variety trials evaluated at the USDA-ARS Potato Research Worksite, outperforming cultivars Snowden and Norchip. ND2470-27 has cold chipping properties comparable to NorValley and could be used as tablestock with high sensory ratings for boiling, baking, and microwaving from 1995 to 1999. This year in state variety trials, yields were comparable with other white check entries. ND2470-27 was entered in the NCRPVT in 1998-99, ranking fifth and second respectively among 25 entries on the basis of merit provided by each cooperator, but was not entered in 2000 due to excessive PLRV and PVY in available seed stock.

Stirling (83181 X 8204A4): Stirling is a high yielding cultivar developed by the Scottish Crop Research Institute in 1991. It is a popular variety in the United Kingdom. Stirling produces round to round-oval, white skinned and white-fleshed tubers with good resistance to external damage. Stirling, an entry this year at our irrigated Dawson location, gave the highest percentage of U.S. No. 1 tubers and was the second highest yielding white. It has good resistance to late blight, early blight and verticillium. Included in the North Dakota crossing block last year, it represents a novel source of general resistance. Processing evaluations this winter will determine its potential usefulness as a chipping clone.

NVT-570, NVT-719, NVT-737, NVT-765, NVT-820 (NorValley Transformations): These transformations have been produced using antisense technology. The purpose of this technology applied to produce these transformations was to prevent the conversion of starch to sugar during storage and prevent cold-sweetening and dark French fries. This is the first year these transformations are being evaluated in a state yield trial. The trial was located at Dawson with NorValley, and the five NorValley transformation entries. Qualitatively these entries did not differ from one another, but NVT-719 had a slightly higher yield. Further processing evaluations this winter will determine if there are any differences in chip and French fry quality.

ATX85404-8: This Idaho seedling was selected in Texas. Most notably, this selection exhibits cold sweetening resistance in North Dakota, and thus has the ability to chip directly from cold storage without reconditioning. Processing evaluations from two trial locations last year indicate it has impressive cold chipping potential, slightly outperforming cultivars Snowden and ND2470-27. Like ND2470-27, it has exceptional long-term storage properties, producing high quality commercial chips. ATX85404-8 is widely adapted and performed well in the SFA National Chip Trials. High setting tubers are slightly oblong with white flesh. This year it was our top yielding chipper at our Hoople location. It is interesting to note that ND860-2 is the male parent of this selection. Specific gravity for ATX85404-8 is in the mid to lower 90's even with supplemental irrigation.

Red Selections

ND5084-3R (ND4058-2R X NDT9 1068-11R): Evaluated in North Dakota State Trials for the fourth year in a row, ND5084-3R has exhibited consistent stable performance with an appealing yield potential. This full season clone competes with standard red-skinned check varieties in terms of yield potential. While yields are similar to Red Pontiac and Red La Soda, its tuber type and color are smoother and deeper red and it has a higher percentage of U.S. No 1 yield. ND5084-3R has been noted to be lower in dry matter according to three years of trials and 1999 culinary data where panelists rated it the least mealy entry. It also tends to have a lower percentage of tubers in the >3.5 inch diameter size than Red Pontiac. While it has many positive attributes, it apparently can have stolon adhesion or "clinging" stolons noted at several locations, especially under dryland environments. This selection was placed second and first among 25 entries in the 1998 and 1999 NCRPVT, respectively, on the basis of merit as

a cultivar by each cooperator, which illustrates its wide adaptability and acceptance. Like ND2470-27, it was not entered for the third and final year due to PLRV and PVY in the seed inventory.

ND3574-5R (ND1196-2R X NorDonna): This has been a high-yielding red selection in recent years. ND3574-5R has a medium maturity, somewhat later than Red Norland with slightly oblong, smooth, bright red tubers. Yields were lower in 2000, although there was a high percentage of U.S. No.1 yield. Although it did not rank high in the 1999 NCRPVT, ND3574-5R out-performed Dark Red Norland in terms of merit as a tablestock variety. It has also been entered in the 2000 NCRPVT. Growers commented that it seems to retain its skin pigmentation in storage without fading. This selection is best suited for dryland production, with the highest quality coming on peat-based soils. In the 2000 growing season, some producers noted skinning problems.

ND3196-1R (ND2223-8R X ND649-4R): With a maturity similar to Red Norland, ND3196-1R has a very nice round shape and an attractive darker skin color than Red Norland and comparable to NorDonna. It has been noted for its excellent color in all North Dakota yield trials regardless of any location and environment. In the previous seven years of yield evaluations in North Dakota State trials, ND3196-1R had comparable yield attributes to other standard red check varieties. Most notable at the Crookston dryland location this selection had 75% of the tubers in the 2.5 to 3.0 inch category. This selection is known for producing few if any >3.5 inch tubers. It was entered in the 2000 NCRPVT with results pending. This selection continues to do well in potato sensory evaluations, indicating excellent tablestock potential.

ND5256-7R (ND2686-2R X Fontenot): This selection is currently in the second year of North Dakota yield trial evaluation. It had excellent uniformity and tuber type both years. This selection produces a high percentage of No. 1 tubers, but it is unique in producing more smaller No. 1 tubers (2.0 to 2.5 inch category) compared to other red checks and selections. Color and yield potential were impressive this year. With a bright red appearance and tight skin set, this clone compares with ND3574-5R and Red La Soda. Maturity is comparable to the mid/late season NorDonna cultivar. This selection could be an excellent tablestock choice because it ranked notably higher in 1999 sensory scores over Red Norland, NorDonna and Red Pontiac.

Russets/Long Whites

TXNS-102, 112, 223, 278, 296 (Russet Norkotah Strains): These are strains selected from Russet Norkotah fields for their vigorous vine growth. Although some of these strains have the potential to out-yield standard Russet Norkotah, with their later maturity they will not compete for its market niche. These variants have been incorporated at NDSU yield trial locations over the past decade with varying unstable results. This year strains 112, 223, 278 and 296 all had U.S. No. 1 mean yields above Russet Norkotah, however they were not significantly different from each other or from Russet Norkotah. Although some of these variations have a slight yield advantage, they still have the same qualitative characteristics such as low gravity and PLRV susceptibility. Three of six strains are expected to be certified under the Plant Variety Protection Act (PVPA). When released, these potatoes will be identified with the prefix TXNS and a three digit variety number: TXNS-112, TXNS-223 and TXNS-278. The other numbered strains, expected to be released later, include 102, 249 and 296.

A79180-10 (A70365-6 X B7024-81): This medium-long selection with light russetting is typically high yielding with good processing potential according to the last five years of state trial data, with the exception of 1999. In 1995 and 1998 it had excellent French fry evaluation scores especially coming from irrigated trials. This year it was the top yielding russet at Dawson, significantly out-yielding cultivars Shepody and Russet Burbank. This selection throws a high percentage of U.S. No.1's compared to other processing russets. However, uniformity within this category is somewhat unstable but acceptable. It has consistently scored well for sensory qualities and could be a dual-purpose selection.

ND4093-4Russ (ND9526-4Russ X ND9787-5Russ): As an early maturing russet selection it has good tuber type and excellent russetting. The length of ND4093-4Russ is greater than Goldrush, but slightly less than Russet Norkotah. In French fry sensory evaluations it is usually ranked similar to or higher than Russet Burbank for fry color, taste, and texture. However, lower specific gravity, especially on irrigated soil, may limit its potential for processing. Field notes indicate a less than vigorous vine, but its yield is distributed well. Although it had less than stellar yields in North Dakota Variety Trials, other regional cooperators continue to give good reviews for this selection. Growers in Wisconsin and the Upper Peninsula of Michigan in 1998-99 noted that it appeared to have resistance to common scab in their growing regions. Similar observations have been

made in North Dakota, Minnesota, Iowa and Ontario.

ND4093-4Russ was also entered in the NCRPVT during 1998 and 1999, placing 2nd among russet tablestock entries (closely behind Russet Norkotah) and 1st, respectively. It is entered in the final year of NCRPVT testing.

ND4233-1Russ (Russet Norkotah X AT9-77259B-8Russ): This may be another dual-purpose russet on the horizon with excellent type. Unlike ND4093-4Russ, total solids under irrigation remain high. Specific gravity and total yield are comparable to Ranger and Russet Burbank. Tuber type of this medium/late season selection is very long with white flesh. Further processing evaluations this winter will explore its potential as a cultivar.

ATX84706-2Russ (A7938-1 X COA7906-5): A potential replacement for Shepody, ATX84706-2Russ is an early maturing selection with good yield potential that is suitable for processing. This is the second year this clone has been evaluated in North Dakota State Trials. With 1999 results posting a mild yield advantage over Shepody and comparable French fry evaluation scores, it offers another choice for early frozen processing. This year at our Dawson site, it had a 100 cwt/A yield advantage over Shepody. Hand samples dug for field day on August 8 indicated an impressive early bulk 70 days after planting. Conversely, tuber type is less impressive because of deep eyes.

TX1385-12Russ (Russet Nugget X CS 802L-2): TX1385-12Russ had a high yield in 1999 but was less impressive in 2000. It had superior scores for processing potential. This late maturing Texas selection bulks rapidly late in the growing season, in which it is comparable to that of Russet Burbank. This selection does show adaptability and promise for producers in North Dakota. Its tuber type is oblong with deep eyes and very little russetting. This selection also has acceptable total solids for good processing potential with supplemental irrigations.

Germplasm Enhancement Update

A major objective of the NDSU breeding program is the incorporation of resistance to the newer genotypes of *Phytophthora infestans*, such as the US-8 genotype that predominates in North Dakota. Crosses utilizing parents with genetic resistance to late blight continued this past winter and their progeny were grown in the greenhouse this past summer. Several new sources of late blight resistance were incorporated into the crossing program.

Late blight resistance was also evaluated in the greenhouse. Of the individuals that were tested, 136 were early generation, 2nd year seedlings. Of the 136 individuals, 27 exhibited moderate resistance with only spotting and 5 exhibited high resistance with no symptoms. Twenty percent of all individuals tested had some resistance to late blight.

Field testing of material for late blight resistance also was conducted at Prosper, ND this past summer in collaboration with NDSU plant pathologists. Plots at Prosper were planted May 25th. Greenhouse grown plants inoculated with the US-8 genotype were planted July 18th to act as a source of inoculum in the field. Late blight was observed on July 25 and developed well, allowing differentiation among clones for resistance/susceptibility.

Seventy-nine entries were planted, consisting of selected clones with one or more resistant parents and check clones with known resistance to late blight. These were primarily five hill duplicated plots, however they were not replicated. Readings were taken on percent of necrotic tissue on August 25th (the last reading) with some clones showing very good to excellent resistance. Of the 79 entries, 27 or 34% showed 40-90% resistance; 39 or 49% showed 91-100% resistance while only 12 or 15% showed less than 40% resistance.

Fourteen entries were also evaluated in a replicated trial, the results of which are presented in Figure 1. As in the five hill unreplicated plots, the entries in the replicated trial displayed a range of resistance/susceptibility. Further late blight trials were conducted by Amy Holm of the Plant Pathology Department on material which has green peach aphid, potato leafroll virus and potato virus Y resistance.

In addition, the following report updating their efforts in germplasm enhancement, was contributed by Jim Lorenzen:

In advanced germplasm enhancement trials, populations resistant to late blight, Verticillium wilt, cold-sweetening, PVY, PLRV, aphids, and Colorado potato beetle were further evaluated. NDG363 is a diploid population that was developed for resistance to Verticillium and cold-sweetening. This population also segregated widely for resistance to late blight, with approximately 40% of the individuals showing good to extreme resistance at the late blight screening plot at Prosper, ND. This and two other populations were evaluated for resistance to Verticillium at the Verticillium screening plots at the Potato Research Farm at Thompson. Progeny genotypes of a series of related families that segregate for resistance to PVY

and PLRV were screened using natural aphid pressure at Glyndon, MN, and under controlled inoculation/infestation at Fargo. ELISA results for both late summer foliage and daughter plant infection will be compiled mid-winter. Gene mapping identified four loci on three chromosomes for genetic resistance mechanisms to the Colorado potato beetle.

North Dakota Table 1. Spacing, fertilizer, soil type, planting and harvest dates of the 2000 North Dakota Potato Variety Trial Sites.

Location	Spacing		Fertilizer Applied	Soil Types	Planting Date	Vinekill	Total Growing Days
	Row	Plant					
Crookston	36"	12"	preplant= 75 lbs/A N 40 lbs/A P	Wheatville prairie fine sandy loam	May 5	Sept 6	120
Larimore	36"	10.5"	preplant=150 lbs/A P, 60 lbs/A of K, copper sulfate @1/2 pint/A; Sidedress of 28-0-0 @ 15 gal/A, fertigation of 28-0-0 7 times during season.	Sandy loam	Apr 20	Sept 1	132
Dawson	36"	10.5"	60 lbs/A 0-0-60 PPI; 380 lbs/A 18-46-0 broadcast at planting; 150 lbs/A 46-0-0 broadcast incorporated before emergence; 6 applications of 5 gal/A 28% N-(15lbs/A foliar during growing season.)	Sandy loam	May 17	Sept 26	133
Hoople	36"	12"	preplant 82 lbs/A N, in furrow 16lbs/A N, 64lbs/A P, 32 lbs/A K	Sandy loam	May 2	Sept 1	121

Note: The North Dakota advanced selections described in these trials can be distinguished as russet, red, or white-skinned by :

ND5555-5 = white
 ND5555-5R = red
 ND5555-5Russ = russet

North Dakota Table 2. Performance of potato cultivars and advanced selections under irrigated conditions at Larimore, ND--2000.

Variety/Selection	Yield (cwt/acre)		% U.S. No. 1	Tuber Categories as % of Total Yield					Specific Gravity
	U.S.# 1 ^a	Total		Cullage	Undersize (<2")	2 - 2.5 "	2.5-3.0"	>3.0"	
Red Pontiac	327 a	364	90	7	3	10	66	13	1.072
TXNS-296	308 ab	338	91	4	4	19	70	2	1.094
TXNS-223	300 ab	321	94	5	4	23	64	4	1.086
TXNS-278	299 ab	331	90	8	7	23	59	3	1.069
TXNS-102	283 abc	333	85	11	2	7	62	18	1.080
Red La Soda	281 abc	323	87	5	4	22	57	12	1.087
Russet Norkotah	277 abc	305	91	1	6	25	77	0	1.101
Shepody	258 abcd	327	79	17	4	17	54	7	1.089
ND5822C-7	254 abcd	272	94	0	6	27	64	2	1.107
Red Norland	253 abcd	285	89	9	11	44	36	0	1.099
Umatilla	251 abcd	314	80	1	6	24	69	0	1.074
ND3574-5 R	246 abcde	265	93	3	7	21	66	3	1.092
TXA549-1 Russ	242 abcdef	269	90	0	4	23	71	2	1.090
ND2470-27	242 abcdef	251	96	10	8	42	39	0	1.110
Ranger	239 abcdef	294	81	2	8	30	60	0	1.107
Dakota Pearl	236 abcdef	264	89	4	7	30	58	0	1.077
ND3196-1R	235 bcdef	265	88	3	9	20	71	5	1.082
ND5084-3 R	232 bcdef	255	91	3	6	18	55	18	1.078
Atlantic	232 bcdef	258	90	6	5	23	58	9	1.096
TX1523-1 Russ	228 bcdef	233	98	0	2	16	76	6	1.091
ATX84706-2 Russ	228 bcdef	252	91	8	1	13	56	27	1.085
NDT4930-5W	228 bcdef	256	89	8	4	21	64	3	1.088
ATX9202-3 Russ	228 bcdef	258	88	3	6	17	74	0	1.085
TXNS-112	224 bcdef	246	91	4	6	22	54	13	1.098
NorValley	224 bcdef	251	89	7	5	20	63	5	1.078
Goldrush	220 bcdef	250	88	4	8	23	64	1	1.102
ATX85404-8	216 bcdef	247	88	5	7	25	71	2	1.087
Snowden	205 cdef	233	88	1	11	44	44	0	1.105
ND5256-7 R	202 cdef	233	87	1	13	43	44	0	1.093
Norchip	195 cdef	232	84	9	6	23	59	3	1.103
ND4093-4 Russ	180 def	205	88	4	8	34	53	1	1.079
NorDonna	168 def	196	86	5	9	28	54	4	1.072
A79180-10	156 ef	180	87	8	5	22	68	2	1.096
Russet Burbank	149 f	225	66	21	12	22	35	9	1.084

^aYield means with the same letter are not considered significantly different from one another based on Duncan's Multiple Range Test with an alpha value of 0.05.

North Dakota Table 3. Performance of potato cultivars and advanced selections under irrigated conditions at Dawson, ND--2000.

Variety/Selection	Yield (cwt/acre)		% U.S. No. 1	Tuber Categories as % of Total Yield					Specific Gravity
	U.S.# 1 ^a	Total		Cullage	Undersize (<2")	2 - 2.5 "	2.5-3.0"	>3.0"	
Red La Soda	444 a	483	92	4	5	32	54	5	1.075
TXNS-223	427 ab	500	85	3	12	30	51	4	1.082
A79180-10	424 abc	460	92	1	7	26	64	2	1.091
TXNS-112	418 abcd	499	84	8	9	32	46	6	1.080
ATX84706-2Russ	417 abcd	457	91	6	3	8	63	20	1.084
A8792-1	401 abcde	435	92	2	6	28	59	5	1.089
Red Norland	400 abcde	459	87	1	11	24	63	1	1.067
ND5822C-7	400 abcde	453	88	1	11	29	59	0	1.096
TXNS-296	380 abcdef	445	86	4	11	33	50	2	1.081
Stirling	373 abcdefg	409	91	1	7	27	60	5	1.072
ATX9202-3Russ	373 abcdefg	410	91	4	5	34	54	3	1.084
TXNS-278	368 abcdefg	445	83	6	11	32	48	3	1.080
ND5084-3R	364 abcdefgh	402	91	3	7	18	62	11	1.063
TX1523-1Russ	363 abcdefgh	403	90	3	7	25	63	3	1.081
TXA549-1Russ	359 abcdefgh	412	87	3	10	28	60	0	1.079
Ranger	357 abcdefgh	420	85	3	13	37	36	12	1.093
Goldrush	349 abcdefgh	403	87	3	10	47	37	2	1.080
NVT-719	345 abcdefgh	421	82	8	10	27	50	5	1.079
Russet Norkotah	344 abcdefgh	401	86	2	12	36	48	1	1.076
Umatilla	340 abcdefgh	452	75	3	22	52	23	0	1.089
Norchip	337 abcdefgh	401	84	3	14	49	34	1	1.085
NDTX731-1R	332 abcdefgh	380	88	3	9	22	62	4	1.065
NorValley	329 abcdefgh	379	87	3	10	31	54	2	1.083
A92303-7	328 abcdefgh	418	79	1	21	59	20	0	1.084
AO87277-6	327 abcdefgh	380	86	2	12	49	36	1	1.093
Red Pontiac	327 abcdefgh	403	81	13	6	19	54	8	1.064
ND2470-27	323 abcdefgh	388	83	4	13	33	47	3	1.082
ND4233-1Russ	314 abcdefgh	373	84	3	13	48	35	1	1.091
ND3196-1R	311 abcdefgh	359	87	2	12	35	51	0	1.081
ND4093-4Russ	306 abcdefgh	380	81	1	19	47	34	0	1.083
NVT-570	296 bcdefgh	360	82	4	14	35	47	0	1.081
NVT-820	294 bcdefgh	355	83	3	14	32	48	3	1.078
NVT-765	292 bcdefgh	364	80	5	15	32	46	2	1.084
TXNS-102	290 bcdefgh	353	82	5	13	38	42	3	1.078
AND92475-2Russ	289 bcdefgh	350	83	1	16	43	39	1	1.079

North Dakota Table 3. Continued.

Variety/Selection	Yield (cwt/acre)		% U.S. No. 1	Tuber Categories as % of Total Yield					Specific Gravity
	U.S.# 1 ^a	Total		Cullage	Undersize (<2")	2 - 2.5 "	2.5-3.0"	>3.0"	
Shepody	286 cdefgh	357	80	9	11	30	43	7	1.088
Russet Burbank	284 defgh	428	66	22	12	37	28	1	1.081
NV-1	276 efgh	335	83	3	14	37	44	1	1.081
ND5256-7R	274 efgh	347	79	1	19	45	34	0	1.077
NVT-737	254 fgh	325	78	4	18	35	42	1	1.086
Dakota Pearl	252 fgh	335	75	3	22	42	33	0	1.080
TX1385-12Russ	250 fgh	283	88	2	10	32	52	4	1.080
ND3574-5R	249 fgh	301	83	1	16	37	46	0	1.063
ND4778-2	241 gh	288	84	6	11	23	58	3	1.084
NorDonna	228 h	297	77	2	21	39	38	0	1.076
Dakota Gold	106 i	188	57	7	36	52	5	0	1.073

^aYield means with the same letter are not considered significantly different from one another based on Duncan's Multiple Range Test with an alpha value of 0.05.

North Dakota Table 4. Performance of potato cultivars and advanced selections under dryland conditions at Hoople, ND--2000.

Variety/Selection	Yield (cwt/acre)		% U.S. No. 1	Tuber Categories as % of Total Yield					Specific Gravity
	U.S. # 1 ^a	Total		Cullage	Undersize (<2")	2 - 2.5 "	2.5-3.0"	>3.0"	
Red La Soda	184 a	220	90	0	10	30	48	11	1.074
ND5084-3R	166 ab	187	81	0	19	51	30	0	1.058
NorValley	163 ab	181	84	2	15	61	22	0	1.084
A92657-1R	157 abc	179	81	3	15	48	34	0	1.073
ND5822C-7	154 abcd	181	76	7	17	31	42	2	1.097
ATX85404-8	151 abcde	192	90	1	9	36	47	6	1.090
ND2470-27	151 abcde	167	56	6	38	48	8	0	1.079
Atlantic	148 abcde	164	84	6	10	27	53	3	1.099
Red Pontiac	144 abcdef	171	75	2	23	41	34	0	1.070
TXA549-1Russ	127 bcdefg	160	85	6	9	22	52	10	1.087
Goldrush	126 bcdefg	151	47	29	24	35	12	0	1.077
AND92475-2Russ	119 cdefgh	149	51	21	28	43	8	0	1.095
ND3196-1R	118 cdefgh	131	72	11	17	46	26	0	1.076
NorDonna	117 cdefgh	155	68	0	31	51	18	0	1.072
NDTX731-1R	114 defghi	125	51	2	47	46	5	0	1.067
Dakota Pearl	111 efghij	137	81	5	14	33	37	11	1.083
Norchip	105 fghij	129	67	0	33	53	14	0	1.083
ND5775-3	99 ghij	130	88	2	11	38	47	3	1.087
Shepody	97 ghij	134	80	0	20	54	26	0	1.079
A79180-10	94 ghijk	116	79	0	21	47	29	2	1.090
ND4778-2	91 ghijkl	102	91	1	8	35	54	2	1.086
ND5256-7R	87 ghijkl	114	80	1	20	49	30	0	1.072
Russet Norkotah	81 hijkl	160	90	0	10	46	44	0	1.077
Umatilla	73 ijkl	144	90	1	9	39	48	4	1.090
A91790-13	72 jkl	108	72	1	27	45	27	0	1.085
Ranger	71 jkl	126	76	0	24	59	18	0	1.092
ND3574-5R	70 jkl	97	90	2	9	34	53	2	1.065
Russet Burbank	69 jkl	149	89	0	11	25	47	17	1.076
ND4093-4Russ	69 jkl	90	77	0	23	51	25	0	1.076
Red Norland	55 kl	73	76	0	23	57	19	0	1.062
Snowden	50 l	73	85	0	15	44	36	5	1.090

^aYield means with the same letter are not considered significantly different from one another based on Duncan's Multiple Range Test with an alpha value of 0.05.

North Dakota Table 5. Performance of potato cultivars and advanced selections under dryland conditions at Crookston, MN--2000.

Variety/Selection	Yield (cwt/acre)		% U.S. No. 1	Tuber Categories as % of Total Yield					Specific Gravity
	U.S.# 1 ^a	Total		Cullage	Undersize (<2")	2 - 2.5 "	2.5-3.0"	>3.0"	
Goldrush	325 a	363	89	4	7	38	48	3	1.084
NorValley	316 ab	350	90	3	7	24	63	3	1.086
Russet Norkotah	313 ab	356	88	4	8	29	55	4	1.087
Atlantic	312 ab	341	91	2	7	27	63	1	1.105
Red La Soda	310 abc	339	91	3	6	24	61	6	1.081
ND5084-3R	303 abcd	329	92	1	6	21	62	9	1.067
ND5256-7R	285 abcde	332	86	1	13	44	42	0	1.081
ND2470-27	279 abcdef	318	88	1	11	44	43	0	1.090
ND3574-5R	274 bcdef	305	90	0	10	37	53	0	1.075
TXA549-1Russ	271 bcde	313	87	2	12	42	45	0	1.095
Dakota Pearl	263 cdefg	294	89	0	10	45	44	1	1.093
Red Pontiac	262 cdefg	289	91	6	3	10	57	24	1.071
Red Norland	258 defg	275	94	1	5	26	68	0	1.077
ND5822C-7	254 efg	309	82	1	17	54	29	0	1.106
Norchip	254 efg	288	88	4	8	27	58	3	1.089
Shepody	246 fg	295	83	10	7	25	55	3	1.076
Snowden	236 fgh	274	86	1	13	39	47	0	1.092
ND3196-1R	231 fgh	244	95	1	4	21	74	0	1.083
ND4093-4Russ	231 fgh	289	80	4	16	34	45	0	1.081
A79180-10	219 ghi	253	87	3	10	37	49	0	1.101
Ranger	191 hi	256	74	6	20	57	17	0	1.102
NorDonna	182 ij	231	79	4	17	42	37	0	1.074
Umatilla	175 ij	288	61	2	37	50	10	1	1.094
Russet Burbank	141 j	239	59	24	17	33	26	0	1.079

^aYield means with the same letter are not considered significantly different from one another based on Duncan's Multiple Range Test with an alpha value of 0.05.

North Dakota Table 6. Summary of U.S. No. 1 yields of white and red entries (cwt/A) in primary trials at all sites.

Clone	Irrigated Sites			Dryland Sites			Avg Yield At All Sites
	Larimore	Dawson	Average	Hoople	Crookston	Average	
Whites							
ND5822C-7	255	400	328	154	254	204	266
NorValley	224	329	277	163	316	240	258
ND2470-27	242	323	283	151	279	215	249
Norchip	195	337	266	105	254	180	223
Dakota Pearl	236	252	244	111	263	187	216
Atlantic	232	not an entry		148	312	230	
Snowden	205	not an entry		50	236	143	
Stirling	not an entry	373		not an entry	not an entry		
NVT-719	not an entry	345		not an entry	not an entry		
NVT-570	not an entry	296		not an entry	not an entry		
NVT-820	not an entry	294		not an entry	not an entry		
NVT-765	not an entry	292		not an entry	not an entry		
NV-1	not an entry	276		not an entry	not an entry		
NVT-737	not an entry	254		not an entry	not an entry		
ATX85404-8	216	not an entry		151	not an entry		
NDT4930-5W	228	not an entry		not an entry	not an entry		
ND4778-2	not an entry	241		91	not an entry		
Dakota Gold	not an entry	106		not an entry	not an entry		
ND5775-3	not an entry	not an entry		99	not an entry		
A91790-13	not an entry	not an entry		72	not an entry		
Average yield	226	294		118	273		242

Reds							
Red La Soda	281	444	363	184	310	247	305
ND5084-3R	232	364	298	166	303	235	266
Red Pontiac	327	327	327	144	262	203	265
Red Norland	253	400	327	55	258	157	242
ND3196-1R	235	311	273	118	231	175	224
ND5256-7R	202	274	238	87	285	186	212
ND3574-5R	246	249	248	70	274	172	210
NorDonna	168	228	198	117	182	150	174
A92657-1R	not an entry	not an entry		157	not an entry		
NDTX731-1R	not an entry	332		114	not an entry		
Average yield	243	325		121	263		237

North Dakota Table 6. Continued.

Clone	Irrigated Sites			Dryland Sites			Avg Yield At All Sites
	Larimore	Dawson	Average	Hoople	Crookston	Average	
Russets/Long Whites							
Goldrush	220	349	285	126	325	226	255
TXA549-1Russ	242	359	301	127	271	199	250
A79180-10	156	424	290	94	219	157	223
Shepody	258	286	272	97	246	172	222
Ranger	239	357	298	71	191	131	215
Umatilla	251	340	296	73	175	124	210
ND4093-4Russ	180	306	243	69	231	150	197
Russet Burbank	149	284	217	69	141	105	161
TXNS-223	300	427	364	not an entry	not an entry		
TXNS-296	308	380	344	not an entry	not an entry		
TXNS-278	299	368	334	not an entry	not an entry		
ATX84706-2Russ	228	417	323	not an entry	not an entry		
TXNS-112	224	418	321	not an entry	not an entry		
Russet Norkotah	277	344	311	not an entry	313		
ATX9202-3 Russ	228	373	301	not an entry	not an entry		
TX1523-1Russ	228	363	296	not an entry	not an entry		
TXNS-102	283	290	287	not an entry	not an entry		
A8792-1	not an entry	401		not an entry	not an entry		
A92303-7	not an entry	328		not an entry	not an entry		
ND4233-1Russ	not an entry	314		not an entry	not an entry		
AND92475-2 Russ	not an entry	289		119	not an entry		
TX1385-12 Russ	not an entry	250		not an entry	not an entry		
Average yield	239	349		94	235		216

North Dakota Table 7. Average French fry evaluation scores- 1999.

Cultivar or Selection	Color	Texture	Flavor	Combined Sensory Score ¹
Irrigated Site —————*REFER TO RATING GUIDE BELOW—————				
Early McCanna				
Gem Russet	7.7	7.0	6.8	7.2
Stampede Russet	7.3	6.9	6.7	7.0
Bannock Russet	7.4	6.6	6.7	6.9
Russet Burbank #2	6.7	6.8	7.1	6.9
TX1385-12Russ	7.3	6.6	6.7	6.9
ND5822C-7	7.5	6.4	6.3	6.7
Legend Russet	6.8	6.6	6.7	6.7
ATX84705-2Russ	6.7	6.0	6.9	6.5
Shepody	6.7	6.7	6.1	6.5
Simplot Std Russet Burbank	6.3	6.4	6.6	6.4
A79180-10	6.3	6.2	6.2	6.2
ND2470-27	6.7	6.2	5.6	6.2
Russet Burbank	5.9	6.4	6.1	6.1
ATX85404-8	6.7	5.8	5.8	6.1
Ranger Russet	6.6	5.9	5.7	6.1
ND4093-4Russ	6.6	5.7	5.8	6.0
TXNS-278	5.7	6.0	6.1	5.9
Russet Norkotah	5.8	5.7	6.1	5.9
NDO2904-7Russ	5.7	5.6	6.2	5.8
TXNS-223	5.6	5.4	6.5	5.8
TXNS-112	5.3	5.6	6.3	5.7
Ore Ida	4.8	5.6	5.8	5.4
Late McCanna				
Innovator	6.9	6.2	6.4	6.5
Simplot Std Russet Burbank	6.3	6.4	6.6	6.4
Gallia	6.3	5.7	6.0	6.0
Victoria	5.8	6.1	6.1	6.0
AND92475-2Russ	5.6	5.7	5.8	5.7
ND5343-1Russ	5.1	6.1	6.0	5.7
Ore Ida	4.8	5.6	5.8	5.4
¹ Combined Sensory Score is the average of the three ratings for color, texture, and taste.				
*Rating Guide				
	7-9	Good		
	5-6	Fair, and acceptable		
	1-4	Poor, not acceptable		

North Dakota Table 7. Continued.

Cultivar or Selection	Color	Texture	Flavor	Combined Sensory Score ¹
Dryland Site	*REFER TO RATING GUIDE BELOW			
Hoopie				
TX1385-12 Russ	7.8	7.2	6.9	7.3
Legend Russet	7.4	7.1	7.0	7.2
Gem Russet	7.9	7.4	6.1	7.1
Bannock Russet	7.0	6.7	6.9	6.9
Stampede Russet	6.8	6.8	6.9	6.8
ND4093-4Russ	7.1	6.5	6.5	6.7
NorValley	6.9	6.8	6.1	6.6
Umatilla	7.2	6.5	6.0	6.6
ND2470-27	6.7	6.9	6.2	6.6
Dakota Pearl	7.7	6.7	5.2	6.5
Shepody	6.8	6.8	5.9	6.5
A79180-10	6.6	6.5	6.4	6.5
Simplot Std Russet Burbank	6.3	6.4	6.6	6.4
Russet Burbank	5.9	6.7	6.4	6.3
ATX84706-2Russ	6.0	6.5	6.3	6.3
Ranger Russet	6.9	5.9	5.7	6.2
ND5822C-7	6.1	6.3	5.3	6.2
TXNS-112	5.7	6.4	6.2	6.1
TXNS-223	5.8	6.2	6.2	6.1
TXNS-278	5.1	6.0	5.9	5.7
Ore Ida	4.8	5.6	5.8	5.4

¹ Combined Sensory Score is the average of the three ratings for color, texture, and taste.

*Rating Guide	7-9	Good
	5-6	Fair, and acceptable
	1-4	Poor, not acceptable

**North Dakota Table 8: Chipping evaluation of cultivars and selections
grown at two North Dakota 1999 State Trial Sites
[Hoople and McCanna, ND].**

Variety or Selection	First Chipping: Direct Chip from 43° ¹	Second Chipping: Two Weeks Reconditioning ²	Third Chipping: Four Weeks Reconditioning ³
Agtron Reading⁴			
Atlantic	46	53	53
Bannock Russet	49	56	56
Gem Russet	47	54	52
Russet Burbank #2	42	44	48
Dakota Pearl	55	56	56
Legend	49	57	55
Norchip	48	57	54
NorValley	55	58	56
Ranger Russet	47	57	53
Russet Burbank	50	48	47
Russet Norkotah	42	51	48
Shepody	45	50	50
Snowden	60	59	56
Stampede Russet	45	54	52
Umatilla	49	51	51
A79180-10	39	46	49
ATX84706-2Russ	53	55	52
ATX85404-8	61	59	55
NDO2904-7Russ	35	44	42
TX1385-12Russ	48	50	51
TXNS-112	41	52	49
TXNS-223	40	50	52
TXNS-278	38	49	51
ND2470-27	57	58	55
ND4093-4Russ	39	51	52
ND5822C-7	49	53	55

¹Stored for 4 weeks at 43°

²Stored for 4 weeks at 43°, Reconditioned for 2 weeks at 65°

³Stored for 4 weeks at 43°, Reconditioned for 4 weeks at 65°

⁴Agtron 0-90

0=Black; 90=white

55=minimum acceptable color

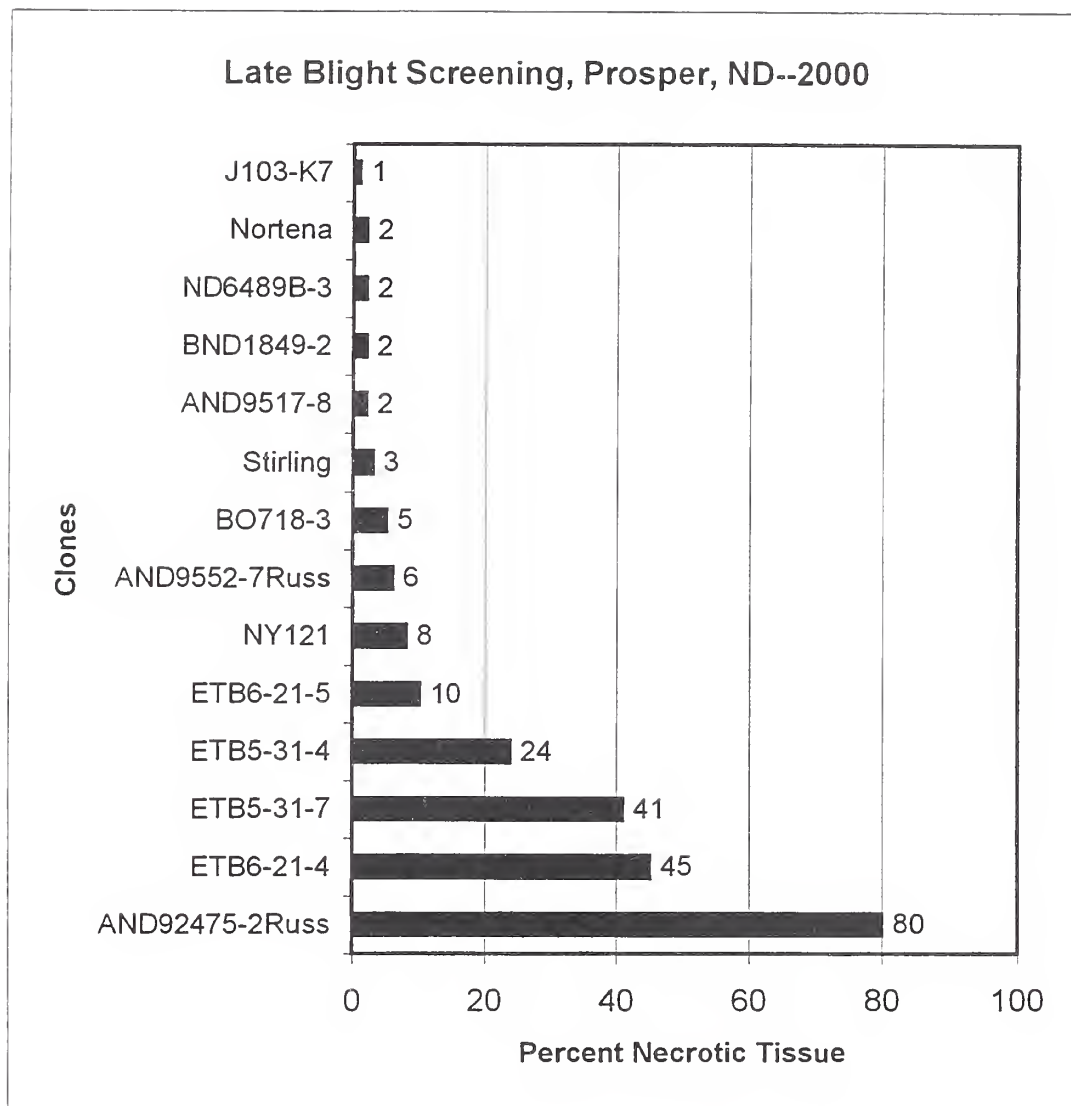


Figure 1. Resistance/susceptibility of potato clones at Prosper, ND--2000.
 Data based on final reading of August 25.

OHIO

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Summary

Ohio cooperates with the USDA and breeders in six states and Canada in evaluating varieties and experimental lines of fresh and processing potatoes. In 2000, we evaluated a total of 157 varieties and experimental lines (Table 1) from ten breeding programs. Entries were placed into one of three experiments completed at the Ohio Agricultural Research and Development Center (OARDC) in Wooster, OH; the Observation Trials, North Central Trial, or Northeast Trial. The trials were designed to evaluate the growth and market traits of each entry when grown under non-irrigated conditions in Ohio. The fact that the trials at the OARDC are not irrigated tends to effect the performance of individual entries.

A portion of Ohio's potato crop is sold to potato chip manufacturers. Therefore, as in past years, the chipping characteristics of entries were evaluated. In 2000, chipping characteristics were evaluated in all entries in the North Central Trial and Northeast Trial and promising entries in the Observation Trials.

Tuber cooking quality impacts the market acceptance of a potato variety. Therefore, cooking and taste tests were completed on sixteen entries in 2000. Until 1996, the quality attributes that consumers report after potatoes have been prepared as boiled, mashed, baked or fried for home or commercial use had not been tested in entries in the germplasm trials. In 1996, we developed basic parameters for each preparation method. Since then, we have improved our evaluation techniques and reporting format.

Planting

Seed potatoes were cut and treated with Mancozeb and then cured and stored under recommended temperature and humidity conditions at the OARDC until planting on June 1. Table 2 contains information on cultural, nutrient, and pest management practices. Table 3 contains pre-plant soil analysis results. Soil type was a well-drained

Wooster silt loam. All entries in the North Central and Northeast Trials were replicated three times. Entries in the Observation Trials were replicated once or twice depending on seed availability. Plant stands were recorded.

Field Observations

The season was characterized by average temperatures and below average rainfall (Table 4). Climatic conditions likely reduced total and marketable yields of some entries, especially those entering drought-sensitive periods in tuber initiation or development June-July and September.

Whole plots were harvested September 22-23. At harvest, observations were taken on tuber characteristics and total plot tuber weight was recorded. Observations included tuber shape, color, surface texture, eye depth, general appearance, and uniformity. These observations, along with yield data, determined which entries from the Observation Trials were included in chip and cooking quality evaluations and which may be evaluated in 2001. A 15-20 lb. sample from each entry in the North Central and Northeast Trials and from promising entries in the Observation Trials were saved for chipping. In addition, 30-40 lb. samples were graded for size on October 26. At grading, 10 randomly selected tubers from each replicate were examined for hollow heart and other internal defects. Scab and external defects were rated in a second random sample of 20 tubers.

Chipping Evaluation

Samples were held in refrigerated storage (44-48°F) September 22-November 13, warmed to 57°F November 14-20, and then removed from storage and held under ambient conditions (approx. 70°F) until being processed on November 22.

For chipping quality evaluation, 4-5 randomly selected tubers were placed in an abrasive peeler and sliced to an approximate thickness of 0.063 inches (approx 16 slices per inch). Raw slices were rinsed in cold water and then fried in a continuous fryer containing clear liquid shortening maintained at 185°C (355°F). After frying, a representative sample was taken for visual color evaluation by the standards contained in the manual published by the SFA by which chips light in color are scored "1" and very dark chips are scored "5." Chip color was also measured with an Agtron Electronic Model M-350. Samples were also evaluated for blistering. The

percentage of chips with blisters greater than 1 cm (0.39in.) was recorded.

Consumer Cooking Evaluation

Tubers from sixteen entries were evaluated after preparation using four methods. Each cooking method required specific procedures which are described below.

Boiling: Potatoes were peeled in an abrasive peeler for three minutes, hand trimmed where necessary and diced so that uniform sizes could be obtained for cooking. Diced potatoes were held in cold water until placed in a boil-in bag pouch with water and baked for thirty minutes. For the size of our dices, this gave an adequate cook. Cooking was accomplished in steam jacketed kettles where water was kept at a low, rolling boil throughout the thirty minute cook. After cooking, the potatoes were allowed to drain and placed on grading trays for evaluation.

Mashing: Potatoes were prepared as for boiled potatoes and then transferred to a mixing bowl and mixed with a home hand-held mixer. Mixing was started at slow speed, increased to medium speed and then finally given a high speed whip. Mixing time was about 30 seconds for each test. No ingredients were added.

Baking: Unpeeled potatoes were selected for uniformity of size, approximately 2.5-3" in diameter, washed and placed on metal cooking sheets. Potatoes were then placed in a pre-heated 350°F oven and cooked for one hour.

Frying: Potatoes were peeled in an abrasive peeler for three minutes to remove the majority of peel so that only minor hand trimming was necessary. Potatoes were sliced to a thickness of 1/8" in a Hobart slicer and deposited directly into water. The sliced potatoes were parboiled for 20 minutes prior to frying. Frying was done on an open grill with a temperature of approximately 350°F. A heavy coating of oil was applied to the grill and 18-20 potato slices were added. The slices were turned to coat them with oil, pulled into a pile and cooked under an aluminum cap for fifteen minutes. After the first five and second five minute cooking intervals, the potatoes were turned to obtain uniform cooking and color development and then recovered for evaluation.

Evaluation was principally subjective with the exception of specific gravity measurements. A scale

of 1-5 was used to evaluate each quality attribute, with 1 being good and 5 being undesirable. On these scales, 3 was an average grade. In addition, descriptive comments were made for most observations.

Results

Yield, plant and tuber trait, and chipping quality data are presented in Tables 5-13. Total and U.S. Number 1 yield averaged 188 and 138 cwt/A across all studies, respectively, with a range of 94-397 cwt/A. Average total yield was 204, 192, 187, and 145 cwt/A in the double-observation, single-observation, Northeast, and North-central studies, respectively. Twenty-five entries were rated as early, sixty-four as mid-season, and sixty-four as late. Post-harvest evaluation results indicate that of 106 entries evaluated, most had tan-colored, moderately-smooth skin and mostly round tubers. Overall tuber appearance was rated poor-fair, fair-good, and good-excellent in 34, 56, and 16 entries, respectively. Of the 105 entries evaluated for chipping quality, specific gravity was ≥ 1.080 in fifty-eight entries and chip quality (based on SFA color and percent blistering) was acceptable in twenty-five entries. Twenty-three of the 25 entries with acceptable chip quality were experimental lines. It is important to note that "cold chipping ability" was estimated in this study. Tubers were re-conditioned for a relatively short time before processing. Results from culinary quality assessments are available in The OSU OARDC/OSUE Department of Horticulture and Crop Science Series No. 706 report (January 2001).

Ohio Table 1. List of varieties and experimental lines planted in the Ohio Potato Germplasm Evaluations at the Ohio Agricultural Research and Development Center (OARDC) in Wooster, OH.

----- Experiment -----			
NE-184 Regional Project	NCR-84 Regional Project	Single Observation Trial	
1 Snowden	1 V 0123-25	1 AF 2079-9	36 ARSW 96-4661-3
2 Dark Red Norland	2 V 0056-1	2 AF 2059-1	37 AF 2086-11
3 CO 86218-2	3 V 0024-6	3 AF 2082-3	38 AF 2129-1
4 AF 1758-7	4 V 0168-3	4 AF 2082-7	39 AF 2082-12
5 NY 112	5 W-1386	5 AF 2069-5	40 AF 2082-18
6 W-1242	6 W-1368	6 AF 2147-1	41 AF 2055-1
7 Kennebec	7 MSB 107-1	7 AF 2079-7	42 AF 2086-18
8 Chieftain	8 MSE 018-1	8 AF 2059-16	43 AF 2129-17
9 Superior	9 MSA 091-1	9 AF 2129-37	44 Kennebec
10 W-1313	10 MSF 373-8	10 AF 2065-3	45 T 35-34
11 Katahdin	11 Atlantic	11 AF 2088-10	46 T 2-2
12 NY 115	12 Red Pontiac	12 AF 2129-19	47 T 3-9
13 Yukon Gold	13 NorValley	13 AF 2082-10	48 T 3-5
14 Atlantic	14 Snowden	14 AF 2096-1	49 T 35-39
15 S 32-3	15 MN 17993	15 AF 2153-1	50 T 28-1
16 3782 Norland	16 MN 18365	16 AF 2078-5	51 T 27-21
17 B 1497-33	17 MN 17989	17 ARSW 96-4654-1	52 B 1912-7
18 B 1339-2	18 MN 18713	18 AF 2135-1	53 B 1946-3
19 B 1240-1	19 W-1431	19 ARSW 96-584-2	54 B 1950-8
20 Snowden	20 W 1355-1	20 ARSW 96-4665-1	55 B 1964-4
21 B 1828-4	21 Russet Burbank	21 AF 2055-8	56 B 1316-5
22 Chieftain	22 ND 4093-4 Russ	22 ARSW 96-4662-2	57 B 1801-3
23 B 1758-4	23 ND 3574-5R	23 AF 2115-1	58 B 1928-4
24 B 1758-3	24 ND 3196-1R	24 AF 2147-3	59 B 1922-3
25 B 0564-9	25 Russet Norkotah	25 AF 2151-1	60 B 1915-14
26 B 1826-1	26 Dark Red Norland	26 ARSW 96-584-1	61 B 1924-1
27 B 1145-2		27 AF 2081-3	62 B 1952-2
28 Superior		28 AF 2059-6	63 B 1927-14
29 B 0564-8		29 AF 2061-2	64 B 1856-10
30 B 0766-3		30 AF 2091-6	65 B 1947-6
31 B 1712-18		31 Ware's Pride (1047)	66 B 1816-5
32 B 1523-4		32 AF 2138-1	67 B 1952-4
33 Katahdin		33 ARSW 96-40006-1	68 Divina
34 B 1709-6		34 ARSW 96-40022-5	69 Adora
35 Atlantic		35 AF 2129-28	
36 B 1806-8			
37 B 0178-34			
38 AF 1763-2			
39 B 1240-1			
	<u>Double Observation Trial</u>		
	1 AF 1938-3		
	2 AF 1565-12		
	3 AF 1569-2		
	4 AF 1615-1		
	5 AF 1668-60		
	6 AF 2047-2		
	7 AF 1763-2		
	8 R 17-7		
	9 T 20-15		
	10 B1327-6		
	11 B 1763-4		
	12 B 1870-3		
	13 Rideau		
	14 B 1878-7		
	15 B 1870-1		
	16 B0811-4		
	17 B 1872-8		
	18 Super Red Norland		
	19 B 1752-5		
	20 B 1876-10		
	21 B 1829-5		
	22 B 1497-22		
	23 B 1884-9		

Ohio Table 2. Cultural, nutrient, and pest management practices for the Ohio Potato Germplasm Trials completed at the OARDC in Wooster, OH in 2000.

Date Planted	June 1
Date Harvested	September 22-23
1999 Crop	Wheat
Cover Crop	Winter Rye
Fertilizer	600 lb 10-20-20 (disk) 600 lb 10-20-20 (planting)
Herbicide	Sencor/Dual
Spacing Between Hill x Row	12" x 36"
Plot Size	3' x 30'
Soil Conditions at Planting	Moist
Irrigation (inches)	None
Sprays Applied:	
June 19	1. Metolachlor 2. Kocide DF 3. Pencozeb DF
June 30	1. Asana XL 2. Pencozeb
July 6	1. Thiodan 3EC 2. Pencozeb
July 13	1. Thiodan 3EC 2. Pencozeb
July 20	1. Ridomil 2. Bravo 81W 3. Thiodan
July 25	1. Ridomil MZ22
August 2	1. Bravo 720 2. Thiodan 3EC
August 9	1. Bravo 720 2. Thiodan 3EC
August 25	1. Bravo 720
September 8	1. Rely

Ohio Table 3. Soil analyses for land used in the Ohio Potato Germplasm Trials completed at the OARDC in Wooster, OH in 2000.

Factor	Level
pH	6.32
P (lb/A)	37
K (lb/A)	99
Ca (lb/A)	840
Mg (lb/A)	206

Soil analyses conducted at Service Testing and Analytical Research (STAR) Lab at the OARDC, Wooster, OH.

Ohio Table 4. Seasonal and historical climatic data for the Ohio Potato Germplasm Trials complete at the OARDC in Wooster, OH in 2000.

	<u>June</u>	<u>July</u>	<u>August</u>	<u>September 1-20</u>
2000 Avg. High Temp. (F)	79	80	80	77
2000 Avg. Low Temp. (F)	59	58	58	55
2000 Avg. Temp. (F)	69	69	69	66
Historical Normal Avg. Temp. (F)	68	72	70	65
2000 Total Precip. (in.)	3.44	1.84	3.38	1.57
50-year Avg. Precip. (in.)	3.90	4.10	3.60	2.20
2000 Precip. deficit (in.)				
period	-0.46	-2.26	-0.22	-0.63
cumulative	-0.46	-2.72	-2.94	-3.57

Ohio Table 5. Percent stand, maturity, yield and chip quality for entries grown in the Ohio NCR-84 Regional Project experiment in 2000.

Number	Entry Name	Stand %	Plant Maturity ¹	Total cwt/A	US #1 cwt/A	US #1 %	B Size %	Cull %	Specific Gravity	Chip Color ²	Blister ³ %	Agtron ⁴
1	V 0123-25	88	3	127	89	70	6	24	1.079	2	0	33
2	V 0056-1	75	4	116	74	64	7	29	1.085	3	10	22
3	V 0024-6	31	5	110	49	45	6	49	1.078	2-4	40	24
4	V 0168-3	74	3	119	81	68	8	24	1.075	5	20	9
5	W-1386	95	5	153	79	51	8	41	1.088	2	10	30
6	W-1368	74	6	166	90	54	9	37	1.086	2-3	0	27
7	MSB 107-1	91	8	216	125	58	3	39	1.079	2-4	0	20
8	MSE 018-1	68	8	186	110	59	9	32	1.087	4	30	19
9	MSA 091-1	89	7	163	92	56	10	34	1.089	2-3	10	31
10	MSF 373-8	82	8	136	71	52	2	45	1.086	2-3	60	26
11	Atlantic	80	6	148	107	72	8	20	1.091	1-2	20	36
12	Red Pontiac	85	7	197	114	58	7	35	1.069	3-5	10	15
13	Norvalley	78	5	181	111	61	9	30	1.082	2	20	32
14	Snowden	87	8	145	108	74	8	17	1.086	3	10	28
15	MN 17993	99	3	132	90	68	10	22	1.075	4	30	19
16	MN 18365	73	2	108	75	70	8	22	1.074	3-4	10	22
17	MN 17989	89	6	139	100	72	6	22	1.071	2-5	0	23
18	MN 18713	92	6	139	88	63	23	14	1.083	3	0	23
19	W-1431	88	6	131	80	62	10	29	1.087	1	30	37
20	W 1355-1	89	5	124	81	65	20	15	1.081	2-3	0	35
21	Russet Burbank	62	8	150	76	51	12	37	1.082	3-4	40	21
22	ND 4093-4 Russ	84	4	134	89	66	12	22	1.075	3-5	0	15
23	ND 3574-5R	83	3	147	109	74	8	18	1.066	4-5	0	11
24	ND 3196-1R	88	1	111	81	73	6	21	1.073	3-5	10	12
25	Russet Norkotah	93	4	142	94	66	15	19	1.073	5	40	11
26	Dark Red Norland	90	3	129	94	73	8	19	1.078	3-5	30	22
AVERAGE		82	5	144	91	63	9	28	1.080	3	17	23

¹See NE-184 rating scale for rating system.

²SFA Standard (1=light, 5=dark)

³Percentage of chips that developed blisters greater than 20mm in diameter during the frying process.

⁴Agtron 350

Ohio Table 6. Percent stand, maturity, yield and chip quality for entries grown in the Ohio NE-184 Regional Project experiment in 2000.

Number	Entry Name	Stand %	Plant Maturity ¹	Total cwt/A	US #1 cwt/A	US #1 %	B Size %	Cull %	Specific Gravity	Chip Color ²	Blister ³ %	Agtron ⁴
1	Snowden	89	5	176	149	85	11	4	1.088	2	0	28
2	Dark Red Norland	90	4	150	118	79	12	9	1.073	4	0	25
3	CO 86218-2	83	7	187	162	87	9	5	1.077	3	20	22
4	AF 1758-7	90	6	160	117	73	8	19	1.066	4-5	10	8
5	NY 112	79	7	234	192	82	3	15	1.084	3-4	10	24
6	W-1242	89	6	190	153	80	4	16	1.080	3	0	28
7	Kennebec	82	6	242	173	72	8	20	1.083	5	0	10
8	Chieftain	94	5	215	171	80	5	15	1.074	5	0	7
9	Superior	91	3	171	123	72	7	20	1.081	4	20	13
10	W-1313	93	7	236	165	70	8	22	1.093	3	0	18
11	Katahdin	95	7	223	172	77	5	18	1.077	4-5	10	12
12	NY 115	93	6	189	128	68	8	24	1.082	2	20	27
13	Yukon Gold	90	4	224	177	79	8	13	1.088	4-5	30	14
14	Atlantic	84	6	202	171	85	2	13	1.093	2	10	30
15	S 32-3	78	5	203	165	81	3	16	1.082	3	30	18
16	3782 Norland	90	4	148	116	78	8	13	1.076	4	10	17
17	B 1497-33	85	5	202	161	80	10	10	1.088	2-3	30	23
18	B 1339-2	95	5	179	134	75	11	14	1.093	3	40	25
19	B 1240-1	94	9	261	221	84	3	13	1.088	3-4	30	21
20	Snowden	92	5	155	111	71	8	20	1.088	3	20	25
21	B 1828-4	79	6	161	115	71	7	22	1.081	2	20	30
22	Chieftain	92	5	223	179	80	5	14	1.073	5	30	10
23	B 1758-4	68	4	144	101	71	10	19	1.077	4-5	0	13
24	B 1758-3	85	4	187	144	77	8	15	1.075	3-5	40	13
25	B 0564-9	88	4	179	140	78	8	14	1.082	2	10	26
26	B 1826-1	80	7	186	120	65	9	26	1.079	2	0	36
27	B 1145-2	86	1	147	95	65	14	21	1.077	4-5	0	14
28	Superior	85	3	177	120	68	7	26	1.078	4-5	40	12
29	B 0564-8	79	3	173	133	77	10	13	1.087	2	30	31
30	B 0766-3	90	5	136	99	73	8	19	1.088	1	0	37
31	B 1712-18	82	4	132	97	74	10	16	1.085	2	0	30
32	B 1523-4	95	6	211	141	67	11	22	1.075	3-5	0	18

Ohio Table 6. Percent stand, maturity, yield and chip quality for entries grown in the Ohio NE-184 Regional Project experiment in 2000.

Entry Number	Stand %	Plant Maturity ¹	Total cwt/A	US # 1 cwt/A	US #1 %	B Size %	Cull %	Specific Gravity	Chip Color ²	Blister ³ %	Agtron ⁴
33 Katahdin	86	6	184	123	67	5	28	1.082	4	0	19
34 B 1709-6	86	6	137	113	83	5	12	1.086	3	40	21
35 Atlantic	81	7	174	101	58	7	35	1.087	2-3	30	28
36 B 1806-8	83	4	195	140	72	6	23	1.085	2-3	20	26
37 B 0178-34	93	6	250	165	66	6	28	1.087	2	0	31
38 AF 1763-2	68	4	148	78	53	9	38	1.070	5	70	8
39 B 1240-1	68	9	158	122	77	4	19	1.085	3	80	21
AVERAGE	86	5	186	139	74	7	18	1.082	3	18	21

¹See NE-184 rating scale for rating system.

²SFA Standard (1=light, 5=dark)

³Percentage of chips that developed blisters greater than 20mm in diameter during the frying process.

⁴Agtron 350

Ohio Table 7. Percent stand, maturity, yield, and chip quality for entries grown in the Ohio Double Observation Experiment and selected for chipping quality evaluation in 2000. Entries submitted by NE-184 participants.

Number	Entry Name	Stand %	Plant Maturity ¹	Total cwt/A	US #1 cwt/A	US #1 %	B Size %	Cull %	Specific Gravity	Chip Color ²	Blister ³ %	Agtron ⁴
1	AF 1938-3	70	5	242	183	76	4	21	1.077	3-5	0	20
2	AF 1565-12	77	5	211	143	68	4	28	1.074	2	0	31
3	AF 1569-2	74	6	174	133	76	5	19	1.076	3-5	10	13
4	AF 1615-1	74	7	174	128	73	3	24	1.080	3-4	20	20
5	AF 1668-60	79	7	189	128	68	4	28	1.067	3-4	100	17
6	AF 2047-2	79	3	160	95	60	2	38	1.080	3-5	0	17
7	AF 1763-2	79	4	232	144	62	6	33	1.070	4-5	50	13
8	R 17-7	73	7	271	231	85	1	14	1.072	3-4	50	15
9	T 20-15	85	6	215	137	64	6	30	1.078	3	10	25
11	B 1763-4	95	3	194	163	84	6	10	1.083	3-5	0	19
12	B 1870-3	82	5	198	160	81	4	15	1.067	4-5	0	10
13	Rideau	97	7	223	135	61	8	31	1.075	3-5	0	15
14	B 1878-7	87	5	235	185	79	2	19	1.068	3	30	21
15	B 1870-1	79	4	206	183	89	3	8	1.064	3-5	0	16
17	B 1872-8	93	3	191	126	66	5	29	1.081	2-3	10	21
18	Super Red Norland	97	1	184	159	86	4	10	1.067	3-5	0	12
19	B 1752-5	85	3	189	157	83	3	13	1.074	3-5	10	16
20	B 1876-10	92	2	184	143	78	5	17	1.077	2-4	10	23
21	B 1829-5	84	4	249	184	74	7	19	1.083	1-2	30	36
22	B 1497-22	77	6	165	106	65	6	29	1.077	3-5	30	16
23	B 1884-9	87	9	298	251	84	4	12	1.084	2-4	0	25
AVERAGE		83	5	209	156	74	4	21	1.075	3	17	19

¹See NE-184 rating scale for rating system.

²SFA Standard (1=light, 5=dark)

³Percentage of chips that developed blisters greater than 20mm in diameter during the frying process.

⁴Agtron 350

Ohio Table 8. Percent stand, maturity, yield, and chip quality for entries grown in the Ohio Single Observation Experiment and selected for chipping quality evaluation in 2000. Entries submitted by NE-184 participants.

Number	Entry Name	Stand %	Plant Maturity ¹	Total cwt/A	US #1 cwt/A	US #1 %	B Size %	Cull %	Specific Gravity	Chip Color ²	Blister ³ %	Agtron ⁴
3	AF 2082-3	73	7	160	103	64	7	29	1.068	3	20	23
18	AF 2135-1	73	7	252	153	61	1	38	1.083	3-5	30	9
23	AF 2115-1	87	7	237	156	66	5	29	1.080	4	0	13
31	Ware's Pride (1047)	77	7	295	235	80	3	17	1.073	4	0	12
32	AF 2138-1	87	5	121	83	68	14	17	1.080	2-4	60	17
39	AF 2082-12	90	5	194	106	55	8	38	1.079	3-4	0	22
47	T 3-9	83	5	189	121	64	4	32	1.079	2-3	10	27
49	T 35-39	97	7	261	221	85	5	10	1.082	2	10	41
50	T 28-1	90	7	286	250	88	3	9	1.076	2-3	20	28
51	T 27-21	87	7	397	337	85	2	13	1.081	3-4	0	23
52	B 1912-7	97	9	223	181	81	5	14	1.073	5	0	7
55	B 1964-4	77	5	203	161	79	7	14	1.082	5	0	11
56	B 1316-5	83	7	271	246	91	1	8	1.080	4-5	0	13
59	B 1922-3	100	5	227	162	71	24	5	1.082	2-4	20	22
61	B 1924-1	100	5	140	114	82	8	10	1.080	2	20	35
62	B 1952-2	100	7	242	219	91	4	6	1.079	3	10	19
63	B 1927-14	77	5	247	189	76	5	18	1.075	3	0	21
65	B 1947-6	83	7	257	231	90	2	8	1.080	2	10	33
66	B 1816-5	93	5	179	146	82	11	8	1.079	2	0	34
AVERAGE		87	6	231	180	77	6	17	1.078	3	11	22

¹See NE-184 rating scale for rating system.

²SFA Standard (1=light, 5=dark)

³Percentage of chips that developed blisters greater than 20mm in diameter during the frying process.

⁴Agtron 350

Ohio Table 9. Tuber characteristics for entries grown in the Ohio NCR-84 Regional Project experiment in 2000. No scab was detected in any sample (data not shown).

Entry		External ¹						Internal ²				
Number	Name	Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appearance	Uniform Shape	Uniform Size	Hollow Heart	Vascular Disease	Internal Necrosis	Defect Free
1	V 0123-25	6	7	3	7	4	3	2	0	0	0	10
2	V 0056-1	5	4	2	7	6	4	4	0	0	0	10
3	V 0024-6	6	6	4	5	4	3	2	0	2	0	8
4	V 0168-3	4	4	4	7	3	4	4	0	0	0	10
5	W-1386	6	5	2	7	3	2	3	0	0	0	10
6	W-1368	5	5	2	5	5	4	4	0	0	0	10
7	MSB 107-1	6	7	3	6	5	3	3	0	0	0	10
8	MSE 018-1	6	6	4	7	3	2	2	0	3	0	7
9	MSA 091-1	6	6	5	5	4	1	2	0	3	1	7
10	MSF 373-8	6	7	3	5	3	4	3	0	0	0	10
11	Atlantic	5	4	2	5	4	3	3	0	0	0	10
12	Red Pontiac	3	6	2	4	3	4	4	0	3	0	7
13	Norvalley	7	7	3	7	2	1	1	0	0	0	10
14	Snowden	5	4	2	5	6	4	4	0	1	0	9
15	MN 17993	2	7	2	6	3	3	3	0	0	0	10
16	MN 18365	2	7	2	7	6	4	3	0	0	0	10
17	MN 17989	2	6	4	7	5	3	3	0	0	0	10
18	MN 18713	5	4	5	7	3	5	5	0	0	0	10
19	W-1431	6	6	5	6	3	4	3	0	0	0	10
20	W 1355-1	6	5	2	6	5	5	4	1	2	6	7
21	Russet Burbank	5	2	7	5	1	2	2	0	0	0	10
22	ND 4093-4 Russ	5	4	4	7	7	5	5	0	1	0	9
23	ND 3574-5R	2	7	2	5	8	5	5	0	2	0	8
24	ND 3196-1R	2	8	2	7	7	4	5	0	0	0	10
25	Russet Norkotah	4	3	7	5	7	4	4	0	1	0	9
26	Dark Red Norland	2	7	3	6	3	2	4	0	0	0	10

¹See NE-184 rating scale for rating system.

²Number of tubers out of 10 tubers that contain the defect.

Ohio Table 10. Tuber characteristics for entries grown in the Ohio NE-184 Regional Project experiment in 2000.

Entry		External ¹				Internal ²				
Number	Name	Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appearance	Hollow Heart	Vascular Disease	Internal Necrosis	Defect Free
1	Snowden	5	5	2	3	6	0	0	0	10
2	Dark Red Norland	2	7	3	5	4	0	0	0	10
3	CO 86218-2	2	6	2	7	5	0	0	0	10
4	AF 1758-7	7	6	4	7	5	0	2	0	8
5	NY 112	5	5	4	5	6	0	0	0	10
6	W-1242	7	6	3	7	6	0	0	0	10
7	Kennebec	7	7	5	7	4	0	0	0	10
8	Chieftain	2	7	3	5	7	0	0	1	9
9	Superior	7	5	3	4	6	0	0	0	10
10	W-1313	5	5	3	6	6	0	0	0	10
11	Katahdin	7	7	2	7	6	0	0	0	10
12	NY 115	7	6	3	7	5	0	0	0	10
13	Yukon Gold	6	6	3	5	6	0	0	0	10
14	Atlantic	5	4	2	6	5	0	0	0	10
15	S 32-3	6	6	4	7	6	0	1	0	9
16	3782 Norland	2	7	4	5	7	1	0	0	9
17	B 1497-33	6	6	3	6	5	0	0	0	10
18	B 1339-2	6	6	2	7	6	1	0	0	10
19	B 1240-1	5	5	2	7	6	0	0	0	9
20	Snowden	4	5	2	5	5	0	0	0	10
21	B 1828-4	5	6	4	7	5	0	0	0	10
22	Chieftain	2	7	3	5	6	0	0	0	10
23	B 1758-4	2	7	3	7	6	0	0	0	10
24	B 1758-3	2	7	4	5	5	0	0	0	10
25	B 0564-9	5	5	3	5	5	0	0	0	10
26	B 1826-1	6	7	2	7	5	0	0	0	10
27	B 1145-2	2	7	2	6	5	0	0	0	10
28	Superior	6	6	4	4	4	0	0	0	10
29	B 0564-8	6	6	2	5	7	0	0	0	10
30	B 0766-3	7	5	2	7	6	0	0	0	10
31	B 1712-18	7	7	2	7	6	0	0	0	10

Ohio Table 10. Tuber characteristics for entries grown in the Ohio NE-184 Regional Project experiment in 2000.

Entry -----		External ¹ -----					Internal ² -----			
Number	Name	Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appearance	Hollow Heart	Vascular Disease	Internal Necrosis	Defect Free
33	Katahdin	7	7	3	5	5	0	0	0	10
34	B 1709-6	6	5	2	6	5	0	0	0	10
35	Atlantic	6	6	3	6	5	0	0	1	9
36	B 1806-8	7	7	5	7	5	0	0	0	10
37	B 0178-34	7	6	4	7	4	0	0	0	10
38	AF 1763-2	7	7	5	5	4	0	2	0	8
39	B 1240-1	5	5	3	6	4	0	0	0	10

¹See NE-184 rating scale for rating system.

²Number of tubers out of 10 tubers that contain the defect.

Ohio Table 11. Tuber characteristics for entries grown in the Ohio Double Observation Experiment and selected for chipping quality evaluation in 2000. Entries submitted by NE-184 participants.

Entry		External ¹				Internal ²					
Number	Name	Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appearance	Hollow Heart	Vascular Disease	Internal Necrosis	Defect Free	Flesh Color
1	AF 1938-3	7	7	4	7	4	0	0	0	10	off white
2	AF 1565-12	8	7	5	7	3	0	0	0	10	white
3	AF 1569-2	6	6	3	7	6	0	0	0	10	off white
4	AF 1615-1	7	7	4	7	5	0	0	0	10	off white
5	AF 1668-60	6	6	4	6	4	0	1	0	9	white
6	AF 2047-2	7	7	4	7	5	0	0	0	10	off white
7	AF 1763-2	6	7	3	6	4	0	0	0	10	white
8	R 17-7	6	6	2	5	3	0	1	0	9	off white
9	T 20-15	6	6	2	4	6	0	0	0	10	off white
11	B 1763-4	1	7	2	7	7	0	0	0	10	white
12	B 1870-3	6	6	2	7	6	0	0	0	10	off white
13	Rideau	3	7	2	7	5	0	0	0	10	white
14	B 1878-7	5	5	5	7	4	0	0	0	10	off white
15	B 1870-1	6	7	2	7	7	0	0	0	10	off white
17	B 1872-8	6	7	2	6	6	0	0	0	10	off white
18	Super Red Norland	2	7	2	7	8	0	0	0	10	off white
19	B 1752-5	7	7	2	7	8	0	0	0	10	yellow
20	B 1876-10	7	7	2	7	8	0	0	0	10	white
21	B 1829-5	5	5	3	6	7	0	0	0	10	white
22	B 1497-22	5	7	3	7	5	0	0	0	10	light yellow
23	B 1884-9	5	5	3	7	6	0	0	0	10	off white

¹See NE-184 rating scale for rating system.

²Number of tubers out of 10 tubers that contain the defect.

Ohio Table 12. Tuber characteristics for entries grown in the Ohio Single Observation Experiment and selected for chipping quality evaluation in 2000. Entries submitted by NE-184 participants.

----- Entry -----		----- External ¹ -----			----- Internal ² -----						
-Number	Name	Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appearance	Hollow Heart	Vascular Disease	Internal Necrosis	Defect Free	Flesh Color
3	AF 2082-3	5	4	3	5	5	0	0	0	10	white
18	AF 2135-1	6	6	3	4	3	0	1	0	9	white
23	AF 2115-1	8	7	3	7	5	0	0	0	10	off white
31	Ware's Pride (1047)	3	7	3	6	3	0	0	0	10	white
32	AF 2138-1	1	7	2	8	8	0	0	0	10	purple variegated
39	AF 2082-12	7	7	2	7	4	0	0	0	10	white
47	T 3-9	7	7	2	6	5	0	0	0	10	yellow
49	T 35-39	7	7	3	4	4	0	0	0	10	off white
50	T 28-1	7	6	2	5	6	0	0	0	10	off white
51	T 27-21	5	6	3	7	5	0	0	0	10	off white
52	B 1912-7	5	4	4	7	6	2	0	0	10	off white
55	B 1964-4	6	6	3	7	5	2	0	0	10	off white
56	B 1316-5	7	7	4	7	3	0	0	0	10	white
59	B 1922-3	6	6	2	7	3	0	0	0	10	white
61	B 1924-1	7	7	2	7	3	0	0	0	10	off white
62	B 1952-2	1	7	2	7	8	0	0	0	10	white
63	B 1927-14	7	7	2	7	6	0	0	0	10	off white
65	B 1947-6	2	6	2	5	5	0	1	0	9	white
66	B 1816-5	1	7	3	7	7	0	0	0	10	yellow

¹See NE-184 rating scale for rating system

²Number of tubers out of 10 tubers that contain the defect.

Ohio Table 13. Percent stand, maturity, and yield information for entries grown in the Ohio Double (D)- or Single (S)-Observation Experiment but not selected for chipping quality evaluation in 2000. Entries submitted by NE-184 participants.

----- Entry -----		-----		-----		-----		-----	
Number	Name	% Stand	Plant Maturity	Total cwt/A ¹	Number	Name	% Stand	Plant Maturity	Total cwt/A ¹
D 10	B1327-6	87	9	215	S 28	AF 2059-6	73	5	
D 16	B0811-4	77	2	94	S 29	AF 2061-2	43	5	39
S 1	AF 2079-9	77	5	102	S 30	AF 2091-6	10	7	5
S 2	AF 2059-1	90	3	145	S 33	ARSW 96-40006-1	77	7	165
S 4	AF 2082-7	90	3		S 34	ARSW 96-40022-5	83	7	
S 5	AF 2069-5	80	7	232	S 35	AF 2129-28	77	5	223
S 6	AF 2147-1	43	9	165	S 36	ARSW 96-4661-3	73	7	198
S 7	AF 2079-7	93	7	121	S 37	AF 2086-11	70	5	131
S 8	AF 2059-16	67	3	87	S 38	AF 2129-1	57	5	126
S 9	AF 2129-37	87	1	39	S 40	AF 2082-18	70	5	
S 10	AF 2065-3	3	7		S 41	AF 2055-1	73	5	194
S 11	AF 2088-10	67	5	160	S 42	AF 2086-18	77	5	169
S 12	AF 2129-19	77	5	102	S 43	AF 2129-17	60	5	140
S 13	AF 2082-10	70	5	126	S 44	Kennebec	67	9	227
S 14	AF 2096-1	83	3	165	S 45	T 35-34	73	9	324
S 15	AF 2153-1	83	3	155	S 46	T 2-2	80	5	102
S 16	AF 2078-5	90	5		S 48	T 3-5	70	7	179
S 17	ARSW 96-4654-1	90	5	213	S 53	B 1946-3	80	5	174
S 19	ARSW 96-584-2	63	7	160	S 54	B 1950-8	73	5	174
S 20	ARSW 96-4665-1	90	5	184	S 57	B 1801-3	63	7	276
S 21	AF 2055-8	67	5	198	S 58	B 1928-4	100	5	203
S 22	ARSW 96-4662-2	73	3		S 60	B 1915-14	100	5	150
S 24	AF 2147-3	87	7	281	S 64	B 1856-10	87	9	295
S 25	AF 2151-1	77	5	203	S 67	B 1952-4	97	5	232
S 26	ARSW 96-584-1	53	3	87	S 68	Divina	93	7	416
S 27	AF 2081-3	90	5	227	S 69	Adora	80	5	218

¹Entries lacking yield data were not harvested.

Oregon

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INTRODUCTION

In cooperation with the Tri-State group, Oregon operates a classical breeding program based on 65,000 to 80,000 progeny annually. Crosses are made at Corvallis and Aberdeen, Idaho in year 1 (see Fig. 1 for additional details) and seedlings are grown in Corvallis greenhouses in Year 2. A-sized tubers from each plant are reserved for next-year Oregon single-hill selection at Powell Butte and, to a lesser extent, Klamath Falls. Approximately 100,000 B- and C-sized tubers are shared with cooperating programs at North Dakota State University, the University of Minnesota, Texas A&M University, and Washington State University.

As shown in Figure 1, Oregon selections are tested at the Central Oregon and Hermiston branch stations in Year 3 (field year 2), four sites (including branch stations at Klamath Falls and Ontario) in year 4, and five or more (including Corvallis and commercial farms) sites thereafter. All Oregon selections are tested in replicated Oregon Statewide, Tri-State and Western Regional Trials prior to release. Increasingly, entries are also routed through a National Trial for at least one year before naming and release.

The Oregon program is designed primarily to develop long russets for frozen processing under Auspices of the Tri-State Program. However, Increasing interest is being given to gourmet tablestock clones and progeny with resistance to viruses and late blight.

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Oregon initiated a new breeding effort to integrate potato virus Y (PVY) and potato leaf roll virus (PLRV) resistance into commercial varieties in 1999. Sixty -seven crosses were made in the winter of 2000 and seedling tubers are currently being grown for single-hill selection in 2001.

RECENT AND PENDING RELEASES

The Oregon program has released several varieties in the last 10 years (Century Russet, 1995; Russet Legend and Umatilla Russet, 1998; Klamath Russet, Winema and Mazama, 2000) and plans to release up to 3 more in 2001/2002.

Umatilla Russet, released by Oregon and cooperators in 1998, continues to enjoy success as a processing variety in the Pacific Northwest. Umatilla is now ranked 9th in U.S. production based on seed acreage (3,176 certified acres in 2000). Umatilla is also enjoying modest success in Canada, Australia, Europe and the United Kingdom and is being trialed in numerous other countries.

Klamath Russet. (AO85165-1) is a high-yielding, attractive long russet intended for fresh market. NDO2438-6R, an attractive red-skinned clone with good yields and grade-out, good color from storage and a high percentage of small tubers, was released as **Winema**. Another attractive red, NDO2686-6R, was released as **Mazama**. Mazama tubers tend to be slightly smoother, more oblong and slightly smaller than those of Winema.

Three Oregon selections are scheduled for release in 2001 in cooperation with the Tri-State group and other partners. Oregon selection AO87277-6, a russet multi-purpose clone with excellent processing quality, will be released as **Wallowa Russet**. Wallowa, an oblong russet, produces good yields of smooth tubers with excellent solids and fry color. The late maturing, round white chipper AO91812-1 will be released as **Willamette**. NDO4300-1R, a smooth red-skinned clone, is scheduled for release as **Modoc** in cooperation with Washington, Idaho, North Dakota and California in 2001.

PROCEDURES

Commercially accepted greenhouse and field management practices were used in all instances except for late blight screening trials. Fungicides and insecticides were omitted from all late blight plantings to encourage disease development. Late blight trials were inoculated twice with the U.S. 8 strain in late August to increase disease pressure and uniformity. Spores were applied as a water suspension using a hand-held pump-up sprayer. Spores were deposited throughout the plantings on a 30 x 30-ft. grid.

SEEDLING TUBER PRODUCTION/SELECTION

A total of 67,062 seedlings were grown out in Corvallis greenhouses in 2000. True seeds were planted in March and seedlings were transplanted into artificial media in 3.5-inch square plastic pots in April. Plants were grown under low fertility to stimulate tuber development. Insects and diseases were controlled as needed. Tubers were harvested by hand in August and stored at 38°F for spring single-hill planting.

As usual, and as was the case in 2000, A-size tubers will be planted at Powell Butte, Oregon and B's and C's will be divided among cooperators in other states. Corvallis seedling tubers form the foundation of the Oregon variety development effort and constitute almost half of the PNW progeny entering the Tri-State Program.

More than 70,000 seedlings were evaluated in single-hill plantings at Powell Butte in 2000. Eighty-five advanced selections were compared in preliminary yield (2-rep) trials at Hermiston, Madras, Ontario, and Klamath Falls. Twenty-one advanced clones were evaluated in the Oregon Statewide (4-rep) Trial at the four branch stations. Standard management practices were used to control weeds, insects and diseases.

Willamette Valley Yield Trials:

Red, russet and chipping and specialty variety trials were planted at Corvallis on May 15 in

randomized complete block designs with 4 reps in a variable soil ranging from silt loam to sandy loam. Plots were single rows 25 feet long on 34-inch centers. Seed pieces were spaced approximately 9.5 inches apart within rows. Plantings were amended with 500 lbs/acre of 15-15-15 broadcasted and incorporated before planting followed by an additional 500 lbs banded at planting. Weeds were controlled with Matrix (rimsulfuron; 0.016lb ai/A) and Prowl (pendimethalin; 1 lb ai/A) post emergence. Insects were controlled satisfactorily with Admire and Monitor according to label directions. Irrigation water was applied, as needed using solid-set sprinklers. Vines were sprayed with Diquat on September 10 and tubers were harvested on September 17.

Late Blight Screening:

Late blight trials were planted on June 4 and 5 at Corvallis in order to insure continued foliar health late in the season when late blight pressure typically peaks in the Willamette Valley. Trials included:

- 42 advanced tri-state/western regional selections and named varieties in 4-rep (15 hills/plot) trials;
- 50 clones in 2-rep, 12hills/plot trials; and
- 325 early selections in a 4-hill/plot, single rep planting.

ARS cooperators at Prosser, Washington and Aberdeen, Idaho provided entries for 4- and 12-hill trials based on previous selections at Corvallis and Aberdeen. Materials for the 4-hill selections were mostly survivors of 1998 single-hill plantings (25,000 progeny) at Corvallis plus clones provided by ARS workers at Aberdeen, Idaho.

Except for weed control, all pesticides were omitted in blight trials. Additional irrigation was applied in late August to stimulate disease development. Plantings were also inoculated twice in late August by spraying water-based spore suspensions on a 30 x 30-foot grid in spreader rows throughout the field(s). Blight trials were lifted on October 4-6 and tubers were examined for infection on October 8.

RESULTS AND DISCUSSION

Results of Corvallis (Willamette Valley) and Oregon Statewide Trials are reported here; additional information on single hills and local and preliminary yield trials are available from the authors. Images and descriptions of named varieties and western selections nearing release are available online at

<http://www.css.orst.edu/potatoes/variety.htm> under "New and Pending PNW Releases.

Performance data for most advanced western selections (Tri-State and Western Regional Trials) can be found at

<http://www.css.orst.edu/coarc/database.htm>.

VARIETAL EVALUATION

Approximately 2% of 70,000 Powell Butte single hills were visually selected for further evaluation at the four cooperating branch stations (Hermiston, Klamath Falls, Madras and Ontario) in 2001.

Twelve of 85 clones included in the 2000 Preliminary Yield Trial were advanced to the 2001 Statewide Trial. As usual, these selections will form the backbone of the Oregon varietal development program, which involves cooperators at four branch stations and the Department of Crop and Soil Science.

Oregon Statewide Trial

Four (AO87277-6; AO91812-1; AO92017-6; and AO94110-203) of 14 numbered selections tested at four branch stations in the Oregon Statewide Trial (Table 1) were retained for further evaluation in Oregon and Tri-State trials. All others were discarded for various reasons.

AO87277-6 is scheduled for release as **Wallowa Russet** in 2001. Wallowa produces oblong, smooth russet tubers with excellent solids and fry colors (Table 1). It has shown no obvious internal or external disorders in Oregon trials. However, it has shown some susceptibility to hollow heart in North Dakota tests. Wallowa has relatively short storage dormancy and will require sprout suppression from early winter onward.

AO91812-1, a round white chipper, will probably be released as **Willamette** in either 2001 or 2002. It has good solids and typically yields well compared to standard chipping cultivars. Tubers have a pronounced folded bud end in some locations. Seed of AO91812-1 is being increased for national trials and release to seed growers.

AO92017-6 is a late-maturing medium russet which produces good yields of attractive tubers with good processing potential. It has shown a mild tendency for sugar ends but generally less so than Russet Burbank or Shepody.

AO94110-203 produces excellent yields and grade, but the tubers tend to be somewhat rounder than desirable for frozen fry production. Fry color is only marginally better than Russet Burbank and darker than Ranger Russet.

Corvallis Russet Trial

Twenty-three advanced selections were compared to Russet Burbank, Ranger Russet and Russet Norkotah on soils ranging from silt loam to sandy loam at Corvallis (Tables 2 and 3). The first 17 entries were also tested in the 2000 Western Regional Trial in 6 states.

AO87277-6 (to be release as **Wallowa Russet** in 2001) ranked first in marketable yield and overall quality (Table 2). It produced good yields of attractive tubers of about average specific gravity for this trial. This clone is known to produce exceptionally light-colored French fries.

Selection A90586-11 produced highest total yields in the trial but relatively low (51%) marketable yields due to cullage, size and shape problems. Selections TXNS296, AC87079-3, and A8893-1 produced relatively high marketable yields.

Compared to previous years, virus pressure was relatively low. The highest percent recorded was 24.8% for AC87138-4.

Many russets which perform poorly under Willamette Valley conditions produce good yields of attractive tubers elsewhere. The reader

is encouraged to study results of the Western Regional Trial elsewhere in this volume for additional information.

Red-skinned Clones

Six red selections and two commercial varieties (Red LaSoda and Dark Red Norland) were compared under typical Willamette Valley conditions (Tables 4 and 5). AO92657-3R produced highest total and marketable tubers. AO92657-3R tubers were slightly large, sometimes oblong and lightly russeted but attractively colored. NDO4588-3 tubers were round, well shaped and very colorful but yields were only average. Because of premium prices often paid for small reds, small tuber size is more lucrative than high yields in many instances.

Yukon Gold and TX1523-1Ru/Y were included as specialty selections. Yukon Gold is a good round, widely grown fresh market variety with attractive yellow flesh. TX1523-1Ru/Y is a russet selection with attractive yellow flesh and high yield potential compared to Yukon Gold. Red LaSoda showed 26% virus infection, higher than any other entry.

Chipping Selections

A91790-13 & NDTX4930-5W outperformed all other entries in terms of both total and marketable yields (Tables 6 and 7). Chip color was also relatively good for these two entries.

Based on all criteria except hollow heart, A91790-13 appeared to be a very good chipping selection. It yielded moderately well, had high solids and produced relatively light-colored chips. After two months of storage at 40 and 50°F, A91790-13 and Atlantic produced lighter-colored chips than other entries. Tubers of A91790-13 were highly attractive but more prone to hollow heart than any other entry.

The clones AC89653-3 and AC87340-2 showed 100% sprouting after two months at 50°F (Table 8) while A90467-14 showed only minor sprout development.

LATE BLIGHT SCREENING

Because of extremely favorable conditions created by inoculation, increased irrigation and the omission of fungicides, late blight pressure was very severe at Corvallis in 2000 but peaked in mid- to late-September.

Varietal response to late blight varies somewhat from year to year depending on timing, and perhaps other factors. It is best, therefore, to base resistance estimates on multi-year trials. The Corvallis screening trials are ongoing and readings for any of the past several years are available from the authors. We have typically found Ranger Russet, Shepody and Russet Norkotah (and strains) to be quite susceptible to tuber decay, for example. Conversely, Umatilla Russet shows good tuber resistance as does Russet Legend and Gem Russet. If the late blight epidemic occurs late, early-maturing varieties with very susceptible foliage can die so rapidly that tubers appear to be protected from infection; it is also possible that tuber skin maturity influences infection levels. Consequently, these varieties may be erroneously classed as tuber-resistant in a given season.

Advanced Replicated Selections and Varieties

All 44 advanced selections and commercial varieties were killed with the exception of A90586-11. Tuber infection levels were high but some early-maturing varieties, known to be highly susceptible to tuber decay, escaped infection (Table 9). While only A90586-11 showed green foliage at the end of the season, tuber infection varied from 0 to 38% among entries, confirming that tuber infection does not always closely mirror foliar injury.

A90586-11 showed the highest level of foliar resistance but may still have been more susceptible than some other entries to tuber decay, although the incidence of decay was still low. The fact that A90586-11 shows tuber decay despite excellent foliar resistance is probably related to the fact that vines remain viable and spore-bearing much later into the season than any other clone under severe blight

pressure. Because vines remain alive so late, the duration of exposure of tubers to spores from associated plants is greatly extended, probably allowing for moderate decay in an otherwise resistant variety.

Based on highly resistant foliage under these extreme conditions, A90586-11 would probably require few if any fungicides under commercial conditions. Because of late blight resistance, excellent yields and good tuber shape, Idaho is considering naming and releasing this clone to the industry in the near future.

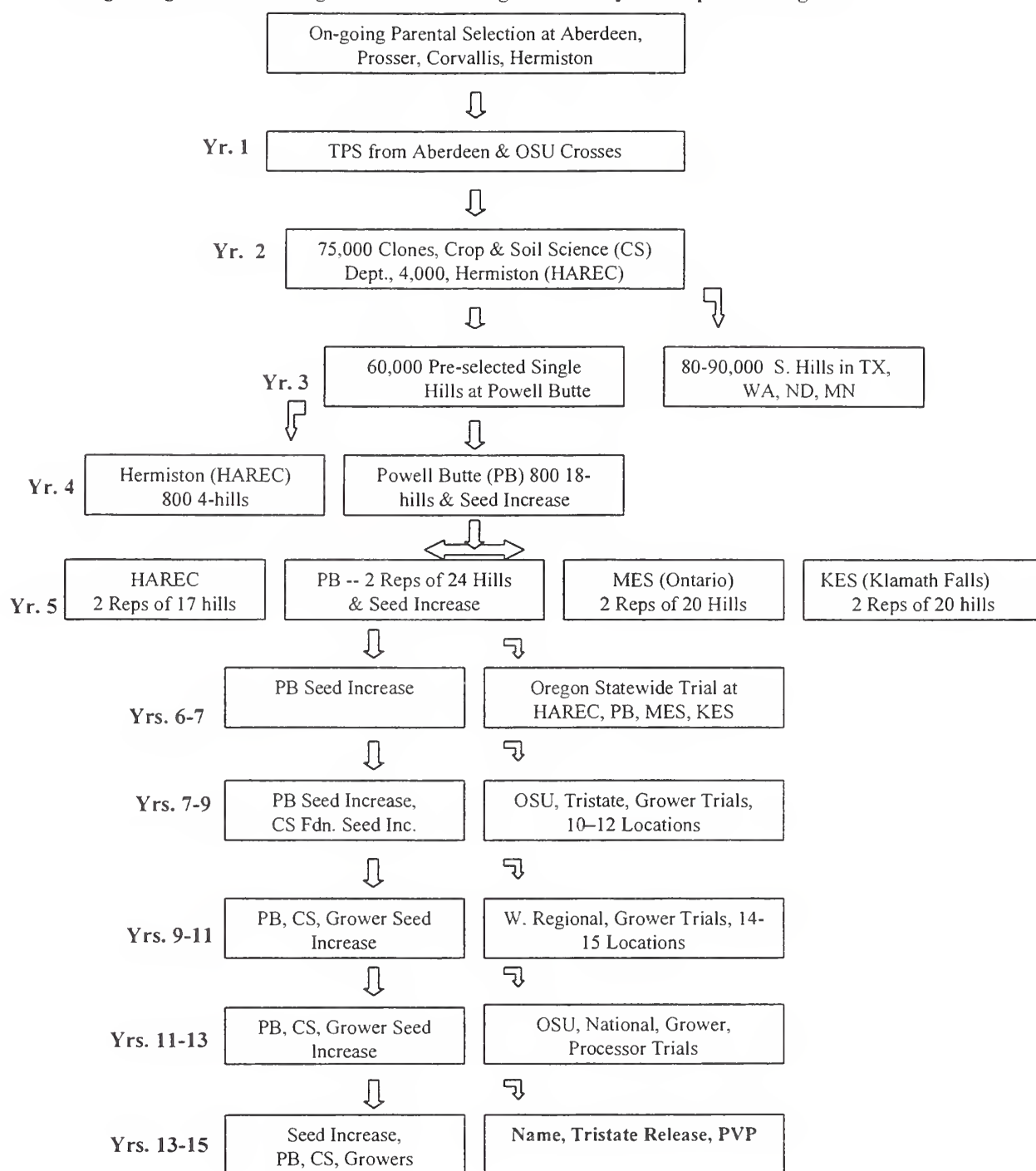
Fifteen-hill, 2-replicate Selections

One hundred ten parental clones provided by ARS cooperators at Prosser, Washington were screened for late blight foliar and tuber resistance. The high epidemic level led to the identification of several highly resistant clones (Table 10). However, most resistant entries were also extremely vigorous and late maturing. Resistant clones showing acceptable early maturity and good tuber type will be used as parents in Tri-state breeding programs.

Four-hill Selections

More than 332 early selections, mostly survivors of 1998 Corvallis single-hill plantings, were planted in 4-hill, non-replicated plots at Corvallis. Entries were evaluated for foliar infection on September 22 and 29 and for tuber infection on October 6 (Table 11). Disease pressure was severe for effective late blight screening. Based on foliage and tuber resistance and desirable tuber characteristics, 13 clones were advanced for further evaluation. Foliar ratings ranked from 1 (no visible disease) to 9 (100% infection) and tuber infection from 0 to 100%. As with the preceding 15-hill clones, selections showing good resistance and tuber type will be used as parents.

Oregon Figure 1: The Oregon Potato Breeding and Variety Development Program



¹Oregon operates all facets of a traditional breeding program based primarily on TPS from Aberdeen. OSU crosses emphasize virus and late blight resistance and specialty tablestock varieties. Year designations for the various stages of development vary widely based on a number of quality, seed, and performance factors. As shown, Powell Butte provides seed for all performance trials while the Crop Science Department provides disease-free stocks for certified seed increase.

Oregon Table 1. Average performance of 21 varieties and selections at four locations,
Oregon Statewide Trial, 2000.

	Yield		%	Tuber	L/W	Sp.	Fry	Sugar	HH/	Black	Vine
Entry ¹	Total	No. 1	No. 1	Size	Ratio	Grav.	Color	Ends	BC	Spot	Mature
	cwt/a	cwt/a	%	oz			USDA	%	%	%	5=Late
R. Burbank	481	254	53	7.89	1.98	1.078	1.35	15	22	6	3.0
Ranger	496	321	65	10.26	1.90	1.082	0.90	3	1	1	4.2
Shepody	505	332	66	10.90	1.60	1.076	1.36	21	1	2	2.8
Norkotah	459	381	83	9.36	1.73	1.068	2.29	11	1	3	1.9
Atlantic	506	410	81	9.56	1.02	1.086	0.51	0	18	9	2.5
AO87277-6	551	420	76	9.33	1.84	1.084	0.47	3	1	0	3.2
AO89128-4.1	505	334	66	7.05	1.83	1.085	0.09	0	5	3	2.9
AO89128-4.2	497	331	67	6.23	1.94	1.088	0.51	0	0	4	3.5
AO91812-1	555	441	80	8.30	0.97	1.084	0.06	0	0	4	3.8
AO92007-2	461	334	73	5.77	1.92	1.078	0.99	4	2	9	3.0
AO92017-6	586	460	78	9.01	1.82	1.080	0.51	11	0	3	4.3
COO93031-3	493	384	78	9.38	2.08	1.074	1.59	3	2	5	2.8
AO92252-1	501	360	72	9.28	2.07	1.084	0.74	3	0	3	3.4
AO94110-203	594	472	79	7.81	1.57	1.088	1.06	1	3	5	3.9
AO94117-201	639	445	70	7.44	1.71	1.083	0.59	6	0	0	3.4
AO94171-2	482	371	77	7.39	1.78	1.084	1.12	3	2	2	3.5
AO95115-3	487	382	78	7.62	1.84	1.091	0.27	1	10	5	3.0
AO95115-6	477	405	85	8.52	1.75	1.068	1.49	2	1	0	3.4
AO95135-5	583	450	77	9.62	1.62	1.075	1.35	1	1	6	3.4
Zolushka	615	439	71	6.50	1.33	1.080	1.78	2	5	4	4.0
Catalina	564	412	73	8.68	1.34	1.075	1.63	3	8	2	4.0

¹Selections in bold were retained for further evaluation; all others except controls were discarded.

Oregon Table 2. Yield, grade, size distribution, and specific gravities of 23 russet potato clones at Corvallis, Oregon, 2000.

Entry	Total Cwt/a	U.S. No. 1 (cwt/a)				Yield (cwt/a)		% U.S. No. 1	Oz ¹ /Tub.	Sp. Grav. ²
		Total	4-6 oz	6-10 oz	>10 oz	<4 oz	2's + Culls			
R. BURBANK	427	177	30	111	36	76	174	42	6.55	1.083
RANGER R	420	259	10	74	175	35	126	61	9.00	1.083
R. NORKOTAH	296	205	24	74	107	33	58	70	7.00	1.073
SHEPODY	443	284	22	86	176	32	126	65	9.07	1.085
A8792-2	508	286	40	121	125	52	170	56	7.43	1.099
A8893-1	526	326	20	139	168	53	147	62	7.63	1.085
A9014-2	365	232	19	86	127	41	92	63	7.73	1.086
A9045-7	548	299	14	66	219	29	220	55	10.20	1.092
AC87079-3	471	329	40	145	145	72	69	70	6.48	1.091
A90586-11	593	296	22	92	182	54	243	51	9.05	1.087
AC89536-5	476	273	49	141	83	93	110	57	5.93	1.092
ATX9202-3RU	461	300	30	122	149	57	104	65	7.68	1.091
PORTGNP3-138	410	251	22	91	138	44	63	70	7.03	1.075
PORTGS124-1	351	191	11	77	103	37	123	56	7.55	1.083
PORTGS129-1	414	215	24	86	104	46	154	52	8.20	1.096
TXNS102	466	280	33	113	134	89	84	62	6.48	1.077
TXNS296	482	359	16	110	232	44	61	77	8.38	1.084
AO989128-4	514	278	32	146	100	118	118	53	6.10	1.102
AO90014-1	321	180	26	88	66	90	51	54	5.68	1.083
AO92007-2	497	308	21	121	167	83	105	62	6.63	1.089
AO92017-6	547	298	24	90	183	64	185	55	7.35	1.086
AO87277-6	494	368	13	109	246	66	61	74	8.53	1.084
AC87138-4	439	225	6	61	157	65	149	52	7.40	1.071
Mean	452	270	24	102	145	60	121	60	7.52	1.086
CV (%)	18	21	42	26	32	28	47	13	13.83	0.537
LSD (0.05)	117	80	14	37	66	24	81	11	1.47	0.008

¹ Total weight per plot/total number of tubers per plot

² Air/water method

Oregon Table 3. External and internal tuber defects, and general characteristics of 23 russet varieties and selections at Corvallis, Oregon, 2000.

Entry	External Defects (%) ¹			Internal Defects (%) ²			%	COMMENTS
	K	GC	G	HH	BC	VD		
R. BURBANK	6.8	11.3	3.9	0.0	0.0	17.5	12.8	Long russet, variable sizes & culls.
RANGER R	9.6	3.7	3.1	7.5	0.0	7.5	6.8	Long russet, variable sizes & culls.
R. NORKOTAH	5.7	3.1	3.4	0.0	0.0	5.0	8.3	Looks good but low yield.
SHEPODY	9.9	3.0	4.3	2.5	2.5	7.5	15.8	High yield but poor shape & culls.
A8792-2	3.1	17.6	1.7	15.0	0.0	0.0	16.5	High yield but poor shape & culls
A8893-1	6.8	7.8	2.7	2.5	0.0	7.5	2.3	Nice light russet & high yield
A9014-2	6.2	5.0	6.1	12.5	2.5	2.5	6.8	Low yield, good oblong russet
A9045-7	6.4	21.5	3.9	0.0	0.0	7.5	11.3	Good yield, poor shape & culls
AC87079-3	1.6	5.1	0.3	35.0	0.0	5.0	10.5	Lots of culls, long russet
A90586-11	12.9	4.7	11.0	2.5	0.0	15.0	6.8	Nice shape, oblong russet
AC89536-5	3.3	7.8	0.6	5.0	0.0	2.5	0.0	Small, poor shape
ATX9202-3RU	5.1	7.3	0.8	0.0	0.0	27.5	14.3	Nice heavy oblong russet
PORTGNP#-138	4.2	2.7	2.6	2.5	0.0	17.5	9.0	Nice oblong russet, some short
PORTGS124-1	12.9	1.4	7.3	0.0	0.0	12.5	9.8	Oblong, poor shape & culls
PORTGS129-1	15.6	1.7	10.0	0.0	0.0	12.5	8.3	Round to oblong, & lot culls
TXNS102	2.6	3.3	2.0	7.5	0.0	2.5	9.0	Poor shape, fair russet
TXNS296	3.0	3.7	1.1	0.0	2.5	12.5	19.5	Nice shape & set, 20 PVY
AO989128-4	8.0	1.2	1.2	5.0	0.0	5.0	3.8	Small shape, lot of culls
AO90014-1	2.2	1.2	0.9	2.5	15.0	10.0	12.8	Small sizes, lot of culls
AO92007-2	5.7	2.6	2.3	7.5	0.0	0.0	3.8	Nice shape & good set
AO92017-6	8.0	4.9	10.7	0.0	0.0	0.0	14.3	Light russet, mediocre
AO87277-6	2.6	1.1	3.4	0.0	2.5	0.0	15.8	Very nice shape & yield
AC87138-4	9.0	7.8	1.9	20.0	2.5	5.0	24.8	Poor size & shape, 25% virus
Mean	6.6	5.6	3.7	5.5	1.2	7.9	10.5	
LSD (0.05)	6.0	5.5	4.0	10.4	6.2	11.4	10.1	

¹ K = Knobs, GC = Growth Cracks, G = Sunburn.

² HH = Hollow Heart, VD = Vascular Discoloration BC = Brown center IN = Internal necrosis. Figures based on 10 U.S. No 1 tubers per replication.

Oregon Table 4. Yield, grade, size distribution, and specific gravity of 8 red clones and two specialty selections at Corvallis, Oregon, 2000.

Entry	Total Cwt/a	Yield U.S. No. 1 (cwt/a)				Yield (cwt/a)		% U.S. No. 1	Oz ¹ / Tuber	Specific ² Gravity
		Total	4-6 oz	6-10 oz	>10 oz	<4 oz	2's + Culls			
Dk. R. Norland	458	344	53	147	145	23	90	75	6.63	1.058
Red LaSoda	431	222	30	86	106	26	183	52	7.20	1.069
YUKON GOLD	351	281	32	74	175	14	56	80	8.50	1.086
A92657-1R	459	365	47	124	195	28	66	79	7.38	1.078
CO89097-2	480	374	61	166	146	30	75	79	6.35	1.080
NDO4300-1R	357	283	62	118	104	35	39	79	5.95	1.062
NDO4323-2	409	283	85	125	74	51	75	71	5.43	1.073
NDO4588-5R	450	318	45	127	146	36	95	71	6.65	1.060
TX1523-1RUY	435	335	67	134	133	33	68	76	6.15	1.079
AO92657-3R	464	403	73	151	180	35	25	86	6.28	1.071
Mean	429	321	55	125	140	31	77	75	6.65	1.072
CV (%)	22	24	24	28	40	33	51	10	15	0.516
LSD (0.05)	136	113	19	51	82	15	57	11	1	0.008

¹ Total weight per plot/total number of tubers per plot

² Air/water method

Oregon Table 5. External and internal tuber defects, and general characteristics of 8 red clones and two specialty selections at Corvallis, Oregon, 2000.

Entry	External Defects (%) ¹			%		Comments
	K	GC	G	VD	Virus	
Dk. R. Norland	2.2	8.4	1.9	12.5	2.3	Medium round, raised lenticels, fair color
Red LaSoda	5.2	13.2	5.7	12.5	25.6	Deep eyes, poor shape & 26% virus
YUKON GOLD	1.0	3.0	7.6	5.0	4.5	Round yellow,
A92657-1R	2.2	6.9	2.2	15.0	6.1	Good color, smooth round
CO89097-2	1.9	2.9	3.3	12.5	5.3	Round red, skinning problem, fair color
NDO4300-1R	0.1	2.6	1.4	2.5	11.4	Good color, smooth & smaller size
NDO4323-2R	0.2	7.8	1.2	17.5	3.0	Good color, smooth
NDO4588-5R	5.8	3.5	3.6	7.5	8.4	Nice color, shape & size
TX1523-1RUY	0.3	3.1	1.1	0.0	0.8	Nice color, with yellow flesh & good yield
AO92657-3R	0.4	0.8	0.3	15.0	2.3	Nice color, shape with high yield.
Mean	1.9	5.2	2.8	10.0	7.0	
LSD (0.05)	2.2	4.7	3.1	13.7	.3	

¹ K = Knobs, GC = Growth Cracks, G = Sunburn.

² VD = Vascular Discoloration. Figures based on 10 U.S. No 1 tubers per replication.

Oregon Table 6. Yield, grade and size distribution, and specific gravity of nine chipping selections at Corvallis, Oregon, 2000.

Entry	Total Cwt/A	Yield U.S. No. 1 (cwt/a)				Yield (cwt/a)		% U.S. No. 1	Oz/ Tuber ¹	Sp. Grav. ²
		Total	4-6 oz	6-10 oz	>10 oz	<4 oz	2's + Culls			
A91790-13	488	349	157	158	35	86	52	70	4.10	1.089
CHIPETA	452	261	62	101	98	31	160	56	6.51	1.080
NDTX4930-5W	427	308	107	123	77	46	73	72	6.13	1.088
A90490-1	398	296	93	132	70	48	54	75	4.95	1.082
AC89653-3	387	237	126	101	11	94	56	61	3.53	1.086
ATLANTIC	379	302	56	118	127	22	55	79	6.82	1.084
A90467-14	351	179	43	63	73	32	140	51	6.15	1.094
AC87340-2	336	233	88	111	34	57	46	67	4.23	1.079
AO91812-1	326	204	60	63	81	27	96	63	5.68	1.081
Mean	394	263	88	108	67	49	81	66	5.34	1.085
CV (%)	19	29	25	40	72	43	36	15	17	0.331
LSD (0.05)	109	110	32	63	71	31	43	15	1	0.005

¹ Total Weight/Total number of tubers

² Air/water method

Oregon Table 7. External and internal tuber defects, and general characteristics of nine chipping selections at Corvallis, Oregon, 2000.

Entry	External Defects (%) ¹			Percent	Percent	Comments
	K	GC	G	HH	Virus	
A91790-13	0.3	0.9	3.6	2.5	3.0	Nice chipper with great yield
CHIPETA	5.9	10.6	7.1	2.5	3.8	Round & smooth chipper, feathering
NDTX4930-5W	1.4	2.5	7.1	12.5	0.0	Round & smooth chipper, variable size
A90490-1	1.3	1.5	5.1	5.0	0.0	Good chipper, small sizes
AC89653-3	0.1	1.9	2.7	2.5	1.5	Good chipper, small sizes
ATLANTIC	0.5	3.6	5.5	15.0	5.3	Round large, deep eye
A90467-14	2.3	14.5	9.1	57.5	10.6	Round, deep eye & culls
AC87340-2	0.4	4.3	2.0	5.0	7.6	Round, deep eye, poor set
AO91812-1	0.5	11.2	6.2	0.0	6.1	Poor yield, deep eye
Mean	1.4	5.7	5.4	11.4	4.2	
LSD (0.05)	2.2	6.2	3.9	17.9	5.0	

¹ K = Knobs, GC = Growth Cracks, G = Sunburn.

² HH = Hollow Heart, Figures based on 10 U.S. No 1 tubers per replication.

Oregon Table 8. Specific gravity, fry color and sprouting characteristics of nine chipping selections and varieties at Corvallis, Oregon, 2000

Entry	Sp. Grav ¹ 10/19	Agtron Chip Color ^{2,3}					%Sprouted		Sprout Length ⁴	
		10/11	11/13		12/13		12/13		12/13	
			40 F	50 F	40 F	50 F	40 F	50 F	40 F	50 F
A91790-13	1.089	45.2	41.0	41.6	40.2	44.9	0.0	53.3	0.0	0.53
CHIPETA	1.080	43.9	40.2	40.0	30.8	41.9	0.0	0.0	0.0	0.00
NDTX4930-5W	1.088	41.6	40.0	44.8	36.8	43.4	0.0	1.0	0.0	0.03
A90490-1	1.082	42.6	35.4	42.3	32.8	42.1	0.0	34.0	0.0	0.11
AC89653-3	1.086	43.8	41.0	42.1	36.1	42.5	0.0	98.8	0.0	0.97
ATLANTIC	1.084	43.8	41.7	41.1	40.2	44.8	0.0	28.5	0.0	0.35
A90467-14	1.094	43.6	40.0	43.7	38.4	41.6	0.0	0.0	0.0	0.00
AC87340-2	1.079	43.9	39.2	41.3	37.6	42.0	0.0	87.8	0.0	0.62
AO91812-1	1.081	41.2	40.0	42.0	32.4	43.3	0.0	1.5	0.0	0.08
Mean	1.085	43.3	39.4	42.1	36.1	42.9	0.0	33.9	0.0	0.30
LSD (0.05)	0.005	NS	4.2	3.8	5.4	NS	----	24.6	----	0.27

¹ Air/water method

² Agtron reflectance value (red filter), high numbers = light color

³ To determine PC/SFA value use the following formula: PCSFA = (Agtron value x -0.113) + 6.70984

⁴ Expressed in inches

Oregon Table 9. Foliar and tuber late blight infection for 45 advanced clones and commercial varieties in replicated trials at Corvallis, Oregon, 2000.

Entry	Fol. Rat. ¹	%Tub. Inf. ²	S.I. ³	Entry	Fol. Rat. ¹	%Tub. Inf. ²	S.I. ³
R. Burbank	9	18	4.5	COO93031-3	9	10	4.5
Ranger R.	9	30	6.8	Dk. R. Norland	9	13	4.7
R. Norkotah	9	13	7.2	RED LASODA	9	18	5.6
Shepody	9	15	5.0	Yukon Gold	9	15	6.0
A8792-2	9	0	0.0	A92657-1R	9	13	5.0
A8893-1	9	20	6.7	CO89097-2	9	10	4.2
A9014-2	9	3	2.5	NDO4300-1R	9	8	4.0
A9045-7	9	5	2.0	NDO4323-2R	9	15	4.2
A90586-11	5.5	8	4.2	NDO4588-5R	9	8	4.5
AC87079-3	9	0	0.0	TX1523-1RU/Y	9	10	6.0
AC89536-5	9	13	6.2	Atlantic	9	3	3.0
ATX9202-3RU	9	28	7.2	CHIPETA	9	23	5.6
PORTGNP3-138	9	15	6.0	A91790-13	9	23	7.0
PORTGS124-1	9	13	6.7	A90490-1	9	25	7.2
PORTGS129-1	9	30	6.2	AC87340-2	9	28	6.5
TXNS102	9	20	6.0	AC89653-3	9	5	3.0
TXNS296	9	28	7.0	AO91812-1	9	38	8
AO89128-4-1	9	10	4.7	NDTX4930-5W	9	15	7.2
AO89128-4-2	9	28	6.7	A90467-14	9	35	6.7
AO92252-1	9	5	2.0	A92303-7	9	3	2.6
AO92007-2	9	3	2.2	A89384-10	9	0	0.0
AO92017-6	9	15	3.5	AC87138-4	9	8	3.2
AO87277-6	9	20	5.7				

¹Ratings are averages for 4 reps: 1 = no foliar injury; 2 = 1-5% injury; 3 = 5-10% injury; 4 = 10-20%; 5 = 25-40%; 6 = 40-60%; 7 = 60-75%; 8 = 75-90%; 9 = 90-100% injury.

² Percent of late blight infected tubers based on 10 randomly selected tubers.

³Decay severity index (S.I.) (includes secondary infection): 1= Minor decay, 5= moderate decay, 10= severe decay

Oregon Table 10. Late blight resistance status of 110 clonal selections in 15-hill replicated trials at Corvallis, Oregon, 2000.

Entry	Fol. Rat. ¹	%Tub. Inf. ²	Entry	Fol. Rat. ¹	%Tub. Inf. ²	Entry	Fol. Rat. ¹	%Tub. Inf. ²	Entry	Fol. Rat. ¹	%Tub. Inf. ²
AO95523-2	8	0	AO97042-9	5	0	A95523-12	8	60	A96838-1	8	0
AO95524-4	9	0	AO97042-19	6	20	A95524-1	9	0	A96857-51	9	0
AO96763-7	1	0	AO97044-17	7	0	A96764-19	4	20	A96858-51	5	20
AO96770-3	5	0	AO97045-11	6	40	A96764-51	8	20	A96864-28	8	40
AO96775-8	5	0	AO97046-4	4	0	A96766-57	4	0	A96870-12	3	0
AO96781-1	4	0	AO97048-2	7	0	A96769-51	8	0	A96886-1	7	0
AO96781-4	5	0	AO97052-7	3	0	A96777-1	5	0	A96886-2	8	0
AO96783-1	7	0	PO97HG3-4	9	0	A96778-52	8	100	A96886-5	8	100
AO96795-8	8	0	PO97HG8-1	6	0	A96781-15	8	0	A96889-2	8	60
AO96812-5	8	0	EGAO9702-2	5	0	A96783-8	5	0	A96889-3	9	20
AO96815-3	5	0	EGAO9703-4	2	0	A96783-61	7	0	A96895-2	8	0
AO96816-4	8	0	EGAO9704-1	5	0	A96783-84	6	0	A96895-3	8	0
AO96822-1	4	0	P97HG7-3	4	40	A96783-88	7	0	A96920-17	6	0
AO96836-1	3	0	EGA9704-1	4	0	A96783-105	9	0	A97011-2	9	0
AO96843-2	3	0	EGA9702-1	5	20	A96783-107	7	0	A97011-7	9	0
AO96843-3	5	20	P97HG8-1	7	0	A96791-30	8	0	EGA9701-2	7	0
AO96850-1	4	0	P97HG7-5	7	0	A96795-6	9	40	EGA9702-4	8	0
AO96854-3	4	0	P97HG7-3	6	0	A96804-4	9	0	A96760-26	8	0
AO96863-3	6	0	P97HG7-2	9	0	A96808-15	7	0	A96777-19	6	0
AO96863-8	4	0	P97HG3-1	6	0	A96811-3	9	100	A96805-15	6	0
AO96871-5	4	0	P97HG7-7	5	0	A96811-8	9	0	A96901-14R	7	0
AO96886-2	5	0	P97HG3-5	8	0	A96812-4	6	0	PA97B10-2	8	100
AO96888-2	3	0	P97HG5-3	5	0	A96812-7	7	0	PA97B12-1	9	0
AO96893-3	4	0	P97HG7-1	5	0	A96814-1	8	0	PA97B12-3	9	80
AO97011-1	5	0	EGA9706-2	3	0	A96814-2	8	0	PA97B13-7	8	0
AO97041-7	7	0	P97HG7-8	7	60	A96814-3	9	0	EGA9705-1	2	0
AO97041-39	5	20	EGA9703-4	3	0	A96825-23	9	100			
AO97041-42	5	0	A95523-7	8	0	A96837-3	7	20			

¹Ratings are averages for 2 reps: 1 = no foliar injury; 2 = 1-5% injury; 3 = 5-10% injury; 4 = 10-20%; 5 = 25-40%; 6 = 40-60%; 7 = 60-75%; 8 = 75-90%; 9 = 90-100% injury.

² Percent of late blight infected tubers based on 10 randomly selected tubers.

Oregon Table 11. Late blight foliar disease ratings and percent tuber infection,
4-hill selections, Corvallis, Oregon, 2000.

Clone	Fol. Rat. ¹	%Tub. Inf.	Clone	Fol. Rat. ¹	%Tub. Inf.	Clone	Fol. Rat. ¹	%Tub. Inf.
A86515-3	6	0	A9563-2	8	0	A97017-51	7	0
A86515-37	4.5	0	A9563-51	8	0	A97017-52	7.5	0
A86517-8	4.5	0	A9563-52	7	0	A97017-53	6.5	0
A86519-18	7	20	A9563-53	7.5	80	A97029-51	7	100
A86519-15	7.5	0	A96864-51	8.5	0	A97029-52	8.5	0
A86525-51	8.5	80	A97003-3	4.5	0	A97032-3	5.5	0
A86525-52	8.5	0	A97003-7	3	0	A97032-12	6.5	0
A90586-24	7	0	A97003-13	2.5	0	A97032-16	4	0
A90586-51	8.5	60	A97003-23	4	0	A97032-37	5.5	0
A90592-48	7	0	A97003-30	3.5	20	A97032-45	3	0
A9524-7	6	100	A97003-38	1.5	0	A97032-51	9	60
A9524-10	5	0	A97003-51	8.5	0	A97039-23	6.5	0
A9524-35	3	0	A97003-52	6.5	20	A97039-32	7	0
A9524-47	7.5	0	A97011-51	8.5	0	A97039-39	5.5	0
A9558-4	3.5	0	A97011-52	8.5	0	A97039-45	6	0
A9558-51	6	0	A97011-53	7	0	A97039-51	4.5	0
A9558-52	8	40	A97011-54	6	0	A97039-52	6	20
A9561-51	8	0	A97011-55	8.5	0	A97039-53	5	0
A9561-52	8	80	A97012-11	8	20	A97039-54	8	0
A9561-53	8	0	A97012-33	5	20	A97040-34	5	20
A9561-54	8.5	40	A97013-21	5	0	A97040-36	5.5	0
A9561-55	8.5	0	A97013-42	6.5	0	A97044-18	6	0
A9561-55	8.5	0	A97013-51	8.5	60	A97044-22	3.5	0
A9562-2	3	0	A97013-52	8.5	100	A97044-25	7.5	0
A9562-24	5	0	A97013-53	8.5	0	A97044-26	6.5	0
A9562-51	2.5	0	A97017-2	4.5	0	A97044-33	6	0

Oregon Table 11. Continued.

Clone	Fol. Rat. ¹	%Tub. Inf.	Clone	Fol. Rat. ¹	%Tub. Inf.	Clone	Fol. Rat. ¹	%Tub. Inf.
A97044-36	6	0	A97054-16	8	0	A97072-45	4.5	0
A97044-45	7	0	A97054-51	8.5	0	A97072-46	7	0
A97044-48	6.5	0	A97054-52	8	0	A97072-51	8	0
A97044-51	7.5	0	A97057-5	6	0	A97077-6	2.5	0
A97044-52	7.5	0	A97057-38	4.5	0	A97077-19	4	0
A97044-53	7.5	0	A97057-51	5.5	0	A97077-28	7.5	0
A97044-55	7.5	0	A97057-52	8.5	80	A97077-29	5	0
A97044-56	7	0	A97057-53	8.5	40	A97081-17	8	0
A97044-57	5	0	A97057-54	8	0	A97081-44	7	0
A97044-58	6.5	0	A97057-55	7	0	A97081-51	8.5	40
A97044-59	7.5	40	A97060-12	8.5	100	A97082-33	8.5	0
A97044-60	8	0	A97060-51	8.5	20	A97082-38	6	0
A97044-61	6	40	A97060-52	8.5	80	A97082-43	4.5	0
A97044-62	4	0	A97063-51	8.5	40	A97082-50	7	0
A97045-1	2.5	0	A97064-9	8.5	0	A97083-2	8.5	0
A97045-9	5	0	A97064-43	7.5	0	A97083-10	6.5	0
A97045-11	6.5	0	A97064-51	8	0	A97083-20	5.5	0
A97045-16	7.5	0	A97064-52	4	0	A97084-5	4.5	0
A97045-38	7	0	A97064-53	6.5	0	A97084-6	3	0
A97045-46	6	40	A97064-54	8.5	0	A97084-14	3.5	0
A97045-51	8.5	0	A97070-3	5	0	A97084-25	3.5	0
A97047-21	3.5	0	A97070-20	4.5	0	A97084-31	4	0
A97047-51	7.5	0	A97070-51	4	0	A97084-51	4	0
A97049-15	4.5	0	A97072-5	6	0	A97084-52	6	0
A97049-48	3	0	A97072-7	6	0	A97085-51	2.5	0
A97054-8	5	0	A97072-40	7.5	0	A97092-18	5.5	40

Oregon Table 11. Continued.

Clone	Fol. Rat. ¹	%Tub. Inf.	Clone	Fol. Rat. ¹	%Tub. Inf.	Clone	Fol. Rat. ¹	%Tub. Inf.
A97092-39	6	20	A9560-3	8.5	40	A97015-3	8	0
A97092-40	4.5	0	A9560-4	7	0	A97019-1	8.5	80
A97092-51	6	0	A9564-1	8	0	A97019-2	8	100
A97092-52	4	0	A9564-2	5	0	A97019-3	7.5	40
A97095-17	3	0	A9564-3	7.5	0	A97019-4	6.5	0
A97095-30	4	0	A9564-4	6.5	0	A97019-5	8.5	40
A97101-19	4	0	A9564-5	7.5	0	A97019-6	8	0
A97101-22	3	0	A97002-1	8.5	0	A97019-7	7.5	80
A97101-33	4.5	0	A97002-2	6	0	A97027-1	7.5	40
A97101-35	3	0	A97002-3	7.5	40	A97027-2	7.5	0
A97101-51	4	0	A97002-4	8	40	A97033-1	8.5	40
A97102-51	8.5	40	A97002-6	8.5	0	A97033-2	8.5	40
A97103-23	7	0	A97002-7	8.5	80	A97033-3	8.5	80
A97103-31	8.5	0	A97004-1	8.5	80	A97033-4	8	0
A97103-47	7.5	0	A97004-2	8.5	0	A97033-5	8	0
A97106-44	5	20	A97004-3	8	20	A97034-1	8.5	0
A86521-1	8	80	A97004-4	8.5	0	A97034-2	8	0
A86526-2	7.5	0	A97005-1	8.5	0	A97034-3	6	0
A90589-1	8.5	40	A97005-2	4	0	A97034-4	8	0
A90590-1	8.5	0	A97005-3	8.5	0	A97034-5	8.5	100
A90590-2	8.5	0	A97005-4	8.5	0	A97034-6	9	0
A90590-3	8.5	100	A97005-5	6	0	A97034-7	8.5	0
A9552-1	8	0	A97008-1	8.5	100	A97034-8	8.5	0
A9552-2	7	0	A97008-2	6	0	A97034-9	8.5	0
A9552-3	8	0	A97008-3	8.5	100	A97034-10	7.5	40
A9552-4	8.5	0	A97008-4	8.5	20	A97050-1	6.5	0
A9552-5	7.5	0	A97008-5	5.5	0	A97051-1	4.5	0
A9552-6	7	0	A97008-6	8.5	0	A97051-2	7	0
A9560-1	8.5	0	A97015-1	8	20	A97051-3	8.5	0
A9560-2	8.5	40	A97015-2	7.5	0	A97051-4	7.5	0

Oregon Table 11. Continued.

Clone	Fol. Rat. ¹	%Tub. Inf.	Clone	Fol. Rat. ¹	%Tub. Inf.	Clone	Fol. Rat. ¹	%Tub. Inf.
A97052-1	8	0	A97058-8	7.5	0	A97096-1	8.5	80
A97052-2	3	0	A97058-9	6.5	0	A97096-2	8	80
A97053-1	8.5	0	A97058-10	8.5	0	A97097-1	8.5	0
A97053-2	5	0	A97065-1	8.5	0	A97097-2	8.5	100
A97053-3	6.5	0	A97065-2	8	0	A97097-3	7.5	0
A97053-4	7.5	80	A97065-3	8	0	A97097-4	8	20
A97053-5	8.5	0	A97066-1	8.5	0	A97097-5	7.5	0
A97053-6	8	0	A97066-2	6.5	80	A97097-6	8.5	40
A97055-1	7	0	A97066-3	8.5	0	A97097-7	8.5	0
A97055-2	8	0	A97067-1	8.5	0	A97097-8	8.5	60
A97055-3	8.5	40	A97067-2	8.5	0	A97098-1	7	0
A97055-4	7	0	A97067-3	8	0	A97098-2	8.5	0
A97055-5	8	0	A97068-1	8.5	80	AC96807-4	8.0	20
A97055-6	8	20	A97068-2	7.5	40	AC96812-1	8.5	0
A97055-7	8.5	20	A97068-3	8.5	0	AC96814-2	8.0	0
A97055-8	8.5	60	A97068-4	8	0	AC96815-2	6.5	20
A97055-9	8.5	0	A97068-5	8.5	0	AC96816-2	7.0	0
A97055-10	8	0	A97069-1	8.5	0	AC96817-1	8.5	0
A97056-1	8.5	40	A97071-1	6.5	0	AC96817-2	8.0	0
A97056-2	6	0	A97071-2	7.5	40	AC96818-3	6.5	0
A97056-3	8.5	0	A97075-1	7.5	0	AC96818-4	7.5	20
A97056-4	8.5	60	A97075-2	8	60	AC96823-2	6.5	0
A97056-5	8	0	A97075-3	7	0	AC96827-2	8.5	0
A97058-1	8	0	A97078-1	8.5	0	AC96836-2	8.5	40
A97058-2	4.5	0	A97078-2	8.5	0	AC96837-3	7.0	0
A97058-3	6	0	A97080-2	7.5	100	AC96837-5	8.5	0
A97058-4	8.5	20	A97080-3	8.5	40			
A97058-5	7.5	0	A97080-4	8.5	40			
A97058-6	7.5	0	A97080-5	6	0			
A97058-7	8.5	0	A97086-1	8	0			

¹Ratings are averages for 2 reps: 1 = no foliar injury; 2 = 1-5% injury; 3 = 5-10% injury; 4 = 10-20%; 5 = 25-40%; 6 = 40-60%; 7 = 60-75%; 8 = 75-90%; 9 = 90-100% injury.

Pennsylvania

B. J. Christ and M.W. Peck

The potato evaluation trial was conducted at the Russell E. Larson Agricultural Research Center in Rock Springs, PA. This trial is part of an extensive and on-going project that evaluates promising clones for yield and chip processing potential. Clones that are identified as excellent performers are then evaluated in regional trials across Pennsylvania.

Materials and Methods

The trial was planted on May 16 as single row plots in a randomized complete block design with three replications. Plots were 10 ft long, 36 inches between rows, 8 inches between seed pieces, and 5 ft breaks between treatments within the rows. Fertilization was banded in furrow during planting at a rate of 945 lbs/A of 20-10-10 (N-P-K). The plots received 3.3, 4.7, 2.8 and 4.0 inches of rainfall during May, June, July and August, respectively. The plots were vine-killed on September 13. The tubers were harvested October 2-3.

Specific gravity was determined by the weight-in-air/weight-in-water method. Tubers were held at ambient temperature until they were placed in storage. The tubers chipped prior to January were held in a 55° F storage and those chipped after December were held at 45° F and then chipped at 45° F or reconditioned at 55° F for three or six weeks prior to chipping. Samples were chipped five times throughout the winter. Four tubers from each clone were peeled, cut in half, and sliced. Eight center slices from each half were cut and fried at 365° F. The chip samples were rated on a scale of 1-10 according to a modified snack food color chart.

Results

Rainfall was near average to above throughout the season and temperature was below average, therefore, yields were higher than normal.

There were numerous lines with yield greater than Atlantic or Snowden. However, of those lines, only a few had consistently light chip color. The following lines produced light chips

regardless of storage temperature and had high yields: Snowden, NY112, NY120, AF1775-2, B0178-34, B0564-8, B1425-9, B1598-4, B1884-9, T3-5 and T3-9. The following lines chipped directly out of 45° F storage: Snowden, B0178-34, B1624-22, NY115, NY112, NY120, S14-2, T3-5 T35-39, MSB076-2, NorValley and Eva.

The lines with the highest specific gravity were: B0178-34, B1425-9, B1591-1, B1801-6, B1829-5, B1873-6, B1884-9, B1964-4, NY112, NY120, T2-2, T3-5, T35-39, S14-2, AF1775-2, G050-2, MSG141-3, MSB076-2, and ARS-W966-584-1.

Those lines with nice appearance and high yield that performed well as a round-white table-stock line were: Keuka Gold, Eva, AF1437-1, AF1569-2, AF1938-3, AF1949-1, T2-2, T28-1, T27-21, T35-34, B1801-6, B1806-8, and B1870-17. Red-skinned table-stock lines with high yield were: ND5084-3R, ND3574-3R, ND5256-7R, B1758-3, B1758-4 and T11-2. ND4093-4Rus was a high yielding russet skinned line with good fry color. Another russet with excellent fry color was B1409-2.

Acknowledgements

The evaluation trial was funded in part by the Pennsylvania Potato Research Program. We acknowledge the provision of seed by Kathleen G. Haynes, USDA-Beltsville; Walter DeJong, Cornell University; Alvin F. Reeves, University of Maine; Gary Secor, North Dakota State University; and, David Douches, Michigan State University.

Pennsylvania Table 1. Total and >1 7/8" yield, specific gravity and chip color results from potato evaluation trial in Center County, Pennsylvania.

Variety/ Line	Yield(cwt/A)		% >1 7/8"	Specific Gravity	Chip color				
	Total	>1 7/8"			Nov ¹	Dec ²	Jan ³	Feb ⁴	Feb ⁵
Whites									
Atlantic	522	481	92	1.094	4	5	4	4	5
Snowden	584	490	84	1.087	3	3	3	3	4
Katahdin	519	480	92	1.073	-	-	-	-	-
Kennebec	686	614	90	1.083	-	-	-	-	-
Yukon Gold*	447	408	91	1.084	-	-	-	-	-
Superior	521	470	90	1.080	5	6	-	-	-
B0178-34	616	550	89	1.100	3	3	4	3	4
B0564-8	565	491	87	1.083	4	4	5	4	6
B0564-9	423	360	85	1.083	6	6	5	5	7
B0718-3	525	444	85	1.073	4	4	6	7	6
B0766-3	413	365	88	1.081	3	3	4	3	5
B1240-1	589	512	87	1.082	4	5	4	4	-
B1425-9*	601	538	90	1.098	5	4	4	5	5
B1598-4	780	713	89	1.076	3	3	3	4	5
B1624-22	414	344	83	1.070	5	4	4	4	4
B1709-6	381	348	91	1.080	3	3	5	3	5
B1752-5*	453	360	79	1.074	6	6	7	6	7
B1801-6*	561	486	87	1.086	6	6	6	7	8
B1806-8*	569	502	88	1.083	5	5	5	7	7
B1826-1	534	467	88	1.073	5	4	4	4	5
B1829-5	461	390	85	1.085	4	4	3	4	5
B1870-3	484	391	81	1.062	6	6	8	7	7
B1870-17	655	547	84	1.071	7	6	7	7	8
B1871-1	547	460	84	1.069	6	4	5	6	6
B1873-6	350	261	74	1.087	4	3	3	4	5
B1880-4	486	398	82	1.084	4	4	4	7	7
B1884-9	715	571	80	1.085	4	3	3	4	6
B1964-4	421	359	85	1.092	4	5	5	7	7
NY112	539	467	87	1.085	3	4	3	4	5
NY115	378	330	87	1.077	3	3	3	3	4
NY120	525	438	82	1.085	3	3	3	4	5
NY121	472	403	85	1.084	5	5	5	6	6
S14-2	464	421	91	1.089	4	3	3	5	5
S28-2	467	392	84	1.078	4	4	5	4	7
S32-3	504	445	89	1.077	4	4	4	5	5
T2-2*	551	503	91	1.086	4	4	4	4	6
T3-5	459	408	89	1.085	4	3	3	3	5
T3-9	490	440	90	1.078	4	4	4	4	5
T20-15	490	406	87	1.077	6	4	4	6	6
T27-21	657	554	84	1.074	6	6	6	6	7
T28-1	607	500	82	1.071	5	5	5	5	6
T35-34	622	503	80	1.084	6	4	4	4	6
T35-39	440	347	79	1.100	4	3	3	3	4
AF1291-44	343	312	88	1.074	7	7	7	8	8
AF1437-1	540	481	89	1.061	6	6	7	7	8
AF1569-2	520	437	85	1.075	4	4	5	6	7

Pennsylvania Table 1. Continued.

Variety/ Line	Yield(cwt/A)		% >1 7/8"	Specific Gravity	Chip color				
	Total	>1 7/8"			Nov ¹	Dec ²	Jan ³	Feb ⁴	Feb ⁵
AF1615-1	561	483	86	1.079	6	6	7	6	7
AF1775-2	651	578	88	1.086	5	5	6	6	7
AF1935-6	426	374	87	1.082	5	4	5	6	6
AF1938-3	607	502	83	1.080	7	7	8	7	8
AF1949-1	529	446	84	1.082	6	6	6	7	8
AF2047-2	416	353	84	1.077	7	6	8	7	8
AF2078-5	366	262	71	1.076	5	6	6	6	7
AF2079-9*	244	225	92	1.074	2	3	4	4	6
AF2082-10	390	305	78	1.078	5	5	6	5	6
ARSW95-6498-5	469	412	89	1.081	4	3	5	4	5
G050-2	703	600	85	1.088	6	6	6	5	5
MSB076-2	472	383	81	1.092	3	4	5	3	4
MSB107-1	529	481	91	1.076	4	4	5	7	6
MSE 028-1	527	465	88	1.073	4	5	6	4	6
MSF373-8	495	323	65	1.078	4	5	4	3	6
MSG141-3	417	359	86	1.099	4	3	4	4	5
Norwis	347	300	87	1.066	4	3	4	5	7
NorValley	543	432	79	1.080	3	3	3	4	4
Keuka Gold	454	416	92	1.072	4	4	5	5	6
Eva	367	333	91	1.077	3	3	4	4	4
B1591-1**	543	462	85	1.093	5	5	5	6	6
AF2079-7**	272	208	75	1.077	4	4	5	6	6
AF2082-3**	376	296	79	1.074	4	4	4	6	5
AF2082-12**	360	338	94	1.078	6	6	7	7	-
AF2082-18**	325	250	77	1.068	4	5	4	5	-
AF2115-1**	556	493	89	1.078	6	6	6	7	7
ARSW96-584-1**	643	412	64	1.089	5	5	6	7	7
LSD	136	142	8						

Variety/ Line	Yield(cwt/A)		%	Specific Gravity
	Total	>1 7/8"	>1 7/8"	
Reds				
D.R. Norland	365	325	90	1.063
Chieftain	555	499	90	1.074
B0811-4*	298	165	56	1.093
B1145-2	461	354	76	1.068
B1491-5*	475	352	74	1.077
B1495-6*	392	271	69	1.074
B1521-2	453	329	72	1.080
B1523-4	740	608	82	1.079
B1529-1	476	399	84	1.078
B1758-3	601	482	80	1.081
B1758-4	624	488	78	1.077
B1763-4	447	325	73	1.081
B1816-5*	487	368	75	1.078

Pennsylvania Table 1. Continued.

Variety/ Line	Yield(cwt/A)		% >1 7/8"	Specific Gravity
	Total	>1 7/8"		
T11-2	538	483	90	1.074
T15-3	509	391	77	1.071
AF2138-1	362	197	54	1.088
ND3574-3R	516	445	86	1.063
ND5084-3R	689	476	69	1.065
ND5256-7R	520	426	82	1.073
Cherry Red	382	324	84	1.083
Red La Soda	643	567	88	1.073
S.R. Norland	424	371	88	1.058
B1952-2**	428	334	78	1.079
LSD	80	72	8	

¹ Nov. = Stored at 55° F from November 10, 2000 and chipped on November 14, 2000.

² Dec. = Stored at 55° F from November 10, 2000 and chipped on December 14, 2000.

³ Jan. = Stored at 45° F from November 10, 2000 then transferred to 55° F three weeks prior to chipping on January 25, 2001.

⁴ Feb. = Stored at 45° F from November 10, 2000 then transferred to 55° F six weeks prior to chipping on February 14, 2001.

⁵ Feb. = Stored at 45° F from November 10, 2000 and chipped on February 5, 2001.

Chip color is based on a 1-10 scale with 1 = lightest, 10 = darkest, 1-5 = acceptable chip color.

* = Yellow Flesh

** Non-replicated, all other lines are the average of 3 replicates.

Pennsylvania Table 2. Total and marketable yield, specific gravity, and French fry color for russet-skinned or long-white potato evaluation trial in Center County, Pennsylvania.

Variety/line	Yield(cwt/A) ¹		Specific Gravity	Percent Pickouts	French Fry color ²		
	Total	>6 oz.			Dec ³	Jan ⁴	Feb ⁵
Russet Norkotah	411	249	1.074	30	0	1	1
B1409-2	456	229	1.086	28	1	0	0
B1649-8	261	148	1.079	35	1	1	0
Amey (B9922-11)	264	175	1.087	46	0	0	0
ND4093-4Rus	413	251	1.078	28	0	0	0
B1933-3	281	128	1.092	40	-	0	0
Russet Norkotah #3117	489	271	1.072	40	1	1	1
Russet Burbank	566	300	1.085	40	0	0	0
Shepody	594	273	1.085	40	0	1	1
GoldRush	517	207	1.076	40	1	1	1

¹ Percentage of marketable yield according to size classes for russets.

² French Fry Color: USDA Scale Color Standards for Frozen Fried Potatoes with 000 = lightest, 4 = darkest.

³ Dec. = Stored at 55° F from November 10, 2000 and fried on December 15, 2000.

⁴ Jan. = Stored at 45° F from November 10, 2000 then transferred to 55° F three weeks prior to frying on January 26, 2001.

⁵ Feb. = Stored at 45° F from November 10, 2000 then transferred to 55° F six weeks prior to frying on February 16, 2001.

Texas

J. Creighton Miller, Jr., Douglas C. Scheuring
and Jeff W. Koym

Variety Development and Testing

Seedling program. In 2000, 97,835 first year seedlings, resulting from 321 different parental combinations or families (crosses), were grown for selection on the Barrett Farm near Springlake and on the CSS Farm near Dalhart. Two hundred thirty eight selections were made from this material. The 2000 first year seedling tubers from Texas (16,903) were grown during the fall of 1999 at College Station primarily from true seed provided by Joe Pavek in Idaho. The remaining seedling seed tubers were provided by Rich Novy, Idaho (24,398), Kathy Haynes, Beltsville, Maryland (904), Al Mosley, Oregon (29,945), and Christian Thill, Minnesota (5,000). Since the inception of the Texas Variety Development Program in 1973, some 1,247,404 seedlings have been grown for selection in Texas, from which 6,227 original selections were made.

Adaptation trials. The objectives of the adaptation trials are: (1) to test advanced selections and named varieties to determine their potential as replacement varieties for those presently grown in Texas, and (2) to identify potential parents for use in the Texas breeding program. Some 247 entries were evaluated near Rio Grande City; 284 were tested in nonreplicated and replicated summer trials; 113 entries were grown in a fall trial near Springlake; 304 entries were evaluated near Dalhart; and, a small seed increase nursery was again grown at the San Luis Valley Research Center, Center, Colorado.

2000 Rio Grande City Trials

Summary of growing conditions. The trials planted near Rio Grande City received below normal precipitation. They were planted on December 15, 1999 and harvested April 4, 2000. Yields were lower than usual. This makes interpretation of results more difficult because clear mean separation was not always achieved, resulting in numerous non-significant

differences. One possible explanation for the lower yields in 2000 is that the drip tape was placed deeper than in the past, which may have resulted in limited water and nutrient availability to the shallow rooted potato plants.

Trials conducted.

- Texas Advanced Red Selection I
- Texas Advanced Red Selection I I
- Yellow Flesh
- Seed Treatment
- Seed Spacing
- Yukon Gold Seed Size and Cut Orientation
- Seed Increase and Evaluation of 1999 Red Selections

Only the results from the Texas Advanced Red Selection Trial I and the Seed Increase and Evaluation of 1999 Red Selections are reported herein.

Texas Advanced Red Selection Trial I. This trial included 8 of the most advanced red selections from the Texas breeding program, with seed produced in Dalhart and harvested on October 12, 1999 (Texas Table 1). Two Red LaSoda checks were included, one from North Dakota certified seed purchased by Starr Produce (ST) and the other produced in Dalhart (DL). The purpose of including the Dalhart check was to help account for any yield/vigor losses resulting from Texas grown seed vs. northern grown seed.

Summary. Based on this trial, Red LaSoda continues to be the variety of choice. However, since most of the entries did not appear to have broken dormancy, because planting occurred only 64 days after harvest, these results might be confounded.

Seed Increase and Evaluation of 1999 Texas Red Selections. From the breeding program standpoint, the seed increase and evaluation of our 1999 red selections was the most exciting aspect of the South Texas Trials. As in 1999, our objective was to see if the original red selections made in Springlake in late August could be planted in December in South Texas, evaluated under South Texas conditions, and the seed increase harvested in March, planted and evaluated again in Dalhart in late May and Springlake in June of 2000. Fifty-eight red

selections were planted and harvested and, based on their performance in South Texas, 16 were retained for planting in May, 2000 at Dalhart and in June, 2000 at Springlake. The 2000 Dalhart planting was harvested the second week of September and the surviving selections will be planted again in December in South Texas, etc. This provides opportunities to not only increase seed rapidly but also to evaluate these selections twice in one year at two important Texas locations. This is a unique opportunity not readily available to other programs in the US. It allows for very rapid progress in breeding for improved red varieties adapted to both North and South Texas. After two cycles of this red selection program, we have found that it does work for rapid field seed increase; however, for accurate yield evaluations we have encountered confounding problems related to dormancy in some of the selections.

2000 Springlake Potato Trials

Summary of growing conditions. The 2000 season had normal precipitation and temperature.

Trials conducted.

- Western Regional Cooperative Russet
- Western Regional Cooperative Red/Specialty
- Western Regional Cooperative Chipping
- Southwestern Regional Cooperative Russet
- Southwestern Regional Cooperative Red
- Southwestern Regional Cooperative Chipping
- Southwestern Regional Cooperative Specialty
- Advanced Russet Selection Observation
- Texas Advanced Russet Selection*
- Texas Advanced Red Selection*
- Texas Advanced Chipping Selection
- Yellow Flesh*

Only trials marked with an * are reported below.

Texas Advanced Russet Selection Trial. The trial consisted of 7 entries, including the check variety Russet Norkotah (Texas Table 2). With the exception of Russet Norkotah, all the seed was Texas grown.

Summary. MWTX548-2Ru and ATX91137-1Ru were the outstanding entries based on yield and general rating.

Texas Advanced Red Selection Observation Trial. This trial consisted of 28 entries grown from Texas seed (Texas Table 3).

Summary. Based on yield the following selections should be tested further: NDTX4271-5R, NDTX4784-9R, COTX95111-1R, BTX1810-1R, COTX94218-1R, AOTX93483-1R, NDTX4784-1R, AOTX91862-1R, NDTX4784-7R, and BTX1810-3aR. Those entries also receiving high general ratings included: NDTX4271-5R, COTX9511-1R, and AOTX93483-1R.

Yellow Flesh Trial. The yellow flesh trial consisted of 8 entries including the check variety Yukon Gold (Texas Table 4).

Summary. None of the entries significantly outperformed the standard check variety Yukon Gold; however, Vivaldi, BTX1749-1W/Y, BTX1749-2Ru/Y, and TX1674-1W/Y deserve further evaluation. Highest general ratings were received by Vivaldi and TX1674-1W/Y. Morning Gold produced a high number of culls.

2000 Dalhart Potato Trials

Summary of growing conditions. These trials, planted 10 miles north of Dalhart, received lower than normal precipitation.

Trials conducted.

- Western Regional Cooperative Russet
- Western Regional Cooperative Red/Specialty
- Advanced Russet Selection*
- Texas Advanced Red Selection*
- Advanced Chipping Selection*
- Yellow Flesh
- 2000 Nursery*

Advanced Russet Selection Trial. This trial consisted of 13 entries including seven Texas and Colorado Russet Norkotah strains and the check variety Russet Norkotah (Texas Table 5).

Summary. Based on yield and general rating, the outstanding entries were TXA549-1Ru, TXNS278, and ATX91137-1Ru.

Texas Advanced Red Selection Trial. This trial was composed of 12 Texas advanced red selections and the check variety Red LaSoda (Texas Table 6). With the exception of one entry, all seed was from the 1999-2000 South Texas nursery.

Summary. Results from this trial with NDTX8-731-1R from Colorado produced seed and Texas winter produced seed of the same entry underscore the confounding effect of allowing insufficient dormancy/rest between seed harvest and planting. This is illustrated in the nearly 200 CWT yield difference between NDTX8-731-1R Colorado produced seed compared to the NDTX8-731-1R South Texas produced winter seed. This has resulted in a reexamination of our accelerated evaluation system for red selections. The outstanding entries based on yield and general rating were NDTX8-731-1R, NDTX4304-1R, Red LaSoda, COTX93053-4R, and NDTX5438-11R.

Advanced Chipping Selection Trial. There were 5 entries in this chipping trial, which included Atlantic as the check variety (Texas Table 7).

Summary. NDTX4930-5W was clearly the highest yielding entry and received the highest general rating.

Yellow Flesh Trial. The trial consisted of 9 entries with two seed sources of Yukon Gold: Colorado and South Texas winter nursery (Texas Table 8).

Summary. Morning Gold, Vivaldi, and Yukon Gold (CO) were the outstanding entries.

2000 Nursery. The 2000 nursery included 12-hill and 20-hill plots of Texas advanced selections and selections from seedlings grown near Springlake in 1999. Eighty-eight varieties or selections from this trial have been saved for further evaluation.

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Texas Table 1. Total yield, total yield of U.S. No. 1, under 4 ounce and culls/No.2 potatoes of 10 entries in the Advanced Red Selection Trial I grown near Rio Grande City, Texas-2000.

Variety Or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt/A					Under 4 oz.	Culls/ No.2
		Total	4-6 oz			10-18 oz		
		Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz		
Red LaSoda(ST)	134.2	73.2	64.5	7.2	1.6	0.0	58.6	2.3
Red LaSoda(DL)	131.5	73.8	49.5	20.2	4.1	0.0	56.3	1.4
NDTX4271-5R	109.3	32.0	28.7	3.3	0.0	0.0	77.3	0.0
NDTX5067-2R	108.0	15.0	13.8	1.2	0.0	0.0	92.8	0.2
NDTX5407-1R	95.3	8.0	6.8	1.2	0.0	0.0	87.4	0.0
NDTX4304-1R	91.8	22.1	18.3	2.7	1.2	0.0	68.5	1.2
NDTX4828-2R	88.2	20.8	18.8	1.9	0.0	0.0	67.4	0.0
COTX93069-5R	82.7	10.9	10.9	0.0	0.0	0.0	71.8	0.0
NDTX5438-11R	68.3	15.0	13.6	1.4	0.0	0.0	53.4	0.0
NDTX731-1R	49.7	12.2	9.5	2.7	0.0	0.0	37.5	0.0
Average	95.9	28.3	23.4	4.2	0.7	0.0	67.1	0.5
L.S.D. (.05)	26.4	18.1	16.6	5.3	2.2	ns	25.7	ns

Texas Table 2. Total yield, total yield of U.S. No. 1, under 4 ounce and culls/No.2 potatoes and general rating of 7 entries in the Texas Advanced Russet Selection Trial grown near Springlake, Texas-2000.

Variety or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt/A				Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz		
MWTX548-2Ru	412.7	362.8	114.4	130.9	115.5	2.0	0.9	3.5
MWTX2609-2Ru	340.4	302.5	80.9	128.0	90.9	2.7	0.9	3.0
Russet Norkotah	319.1	282.6	91.8	109.9	78.8	2.1	2.2	3.1
ATX91137-1Ru	326.0	277.1	83.4	136.3	52.2	5.2	0.4	3.8
MWTX2609-4Ru	322.1	280.5	73.2	121.6	83.0	2.7	3.4	3.0
ATX82539-4Ru	300.0	261.9	73.3	94.1	90.6	3.9	0.7	3.4
ATX9312-1Ru	273.1	231.2	75.0	88.5	62.4	5.3	5.4	3.3
Average	336.7	294.6	86.2	120.1	85.2	3.1	1.4	3.3
L.S.D. (.05)	56.8	63.8	ns	33.5	36.3	ns	ns	

¹ 1=very poor to 5= excellent

Texas Table 3.

Total yield, total yield of U.S. No.1, under 4 ounce and culls/No.2 potatoes and general rating of 28 entries in the Texas Advanced Red Selection Observation Trial grown near Springlake, Texas-2000.

Variety or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt/A					Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz			
NDTX4271-5R	374.4	239.6	141.3	92.5	5.7	0.0	134.9	0.0	4.0
NDTX4784-9R	328.5	254.6	78.9	130.5	45.2	0.0	73.9	0.0	2.7
COTX95111-1R	310.6	210.9	102.6	80.3	28.0	0.0	85.4	14.3	3.7
BTX1810-1R	307.7	219.5	43.8	106.2	60.3	9.3	63.1	25.1	3.0
COTX94218-1R	288.4	150.6	71.7	53.8	25.1	0.0	125.5	12.2	2.7
AOTX93483-1R	275.4	211.6	81.8	83.9	45.9	0.0	63.8	0.0	4.0
NDTX4784-1R	255.4	176.5	57.4	67.4	51.6	0.0	78.9	0.0	3.0
AOTX91862-1R	250.3	177.9	72.4	61.7	43.8	0.0	72.4	0.0	3.0
NDTX4784-7R	246.8	186.5	80.3	64.6	41.6	0.0	60.3	0.0	3.0
BTX1810-3aR	243.9	222.4	46.6	53.1	55.9	66.7	21.5	0.0	2.2
NDTX5407-1R	240.3	96.1	80.3	15.8	0.0	0.0	136.3	7.9	2.0
NDTX5438-11R	238.1	167.8	71.7	63.1	33.0	0.0	70.3	0.0	3.0
BTX1810-2aR	233.1	132.0	54.5	55.9	21.5	0.0	80.3	20.8	2.2
NDTX4828-2R	210.9	127.7	52.4	57.4	17.9	0.0	83.2	0.0	2.2
BTX1813-2R	210.2	147.8	71.7	50.9	25.1	0.0	62.4	0.0	2.2
COTX93069-5R	203.0	63.8	41.6	22.2	0.0	0.0	139.2	0.0	3.0
NDTX6345-2R	193.0	147.0	78.9	59.5	8.6	0.0	45.9	0.0	1.7
NDTX6356-3R	190.8	86.1	71.7	14.3	0.0	0.0	98.3	6.5	2.7
NDTX4304-1R	174.3	39.5	15.1	24.4	0.0	0.0	134.9	0.0	3.2
COTX94216-1R	170.0	113.3	47.3	66.0	0.0	0.0	51.6	5.0	3.0
NDTX5067-2R	165.7	83.2	50.2	33.0	0.0	0.0	82.5	0.0	2.2
COTX93068-1R	160.0	66.7	53.8	12.9	0.0	0.0	93.2	0.0	2.7
BTX1810-3bR	153.5	104.7	67.4	18.6	18.6	0.0	38.0	10.8	3.0
COTX93032-1R	147.0	15.1	15.1	0.0	0.0	0.0	132.0	0.0	2.2
ATTX83355-11R	132.7	113.3	44.5	38.0	30.8	0.0	19.4	0.0	3.0
ATTX82706-2R	107.6	50.9	45.2	5.7	0.0	0.0	50.9	5.7	3.2
COTX93053-4R	100.4	0.0	0.0	0.0	0.0	0.0	100.4	0.0	2.2
NDTX6833-1R	79.6	45.2	39.5	5.7	0.0	0.0	34.4	0.0	2.0
Average	214.0	130.4	59.9	47.8	20.0	2.7	79.7	3.9	2.8

¹ 1=very poor to 5= excellent

Texas Table 4.

Total yield, total yield of U.S. No.1, under 4 ounce and culls/No.2 potatoes and general rating of 8 entries in the Yellow Flesh Trial grown near Springlake, Texas-2000.

Variety or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt/A				Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz		
Vivaldi	401.0	245.7	156.4	80.0	9.3	0.0	0.0	3.2
BTX1749-1W/Y	339.6	221.3	105.4	100.8	15.1	0.0	0.0	3.0
Morning Gold	337.8	142.4	86.1	52.7	3.6	0.0	22.6	3.0
BTX1749-2Ru/Y	334.6	226.7	82.1	87.2	57.4	0.0	3.2	3.0
Yukon Gold	330.7	281.9	62.0	122.3	97.6	0.0	0.0	3.1
Adora	318.5	245.7	96.5	123.0	26.2	0.0	0.0	3.1
TX1674-1W/Y	294.1	230.6	105.1	108.7	16.9	0.0	7.9	3.4
BTX1544-2W/Y	284.4	146.7	92.2	44.5	10.0	0.0	0.0	3.0
Average	336.6	227.7	99.1	96.4	32.3	0.0	4.8	3.1
L.S.D. (.05)	ns	ns	ns	ns	ns	ns	ns	

¹ 1=very poor to 5= excellent

Texas Table 5. Total yield, total yield of U.S. No.1, under 4 ounce and culls/No.2 potatoes and general rating of 12 entries in the Advanced Russet Selection Trial grown near Dalhart, Texas-2000.

Variety Or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt/A					Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz			
TXA549-1Ru	401.6	285.0	106.3	134.6	41.2	2.9	94.7	22.0	3.7
TXNS278	381.8	219.1	83.5	79.4	56.2	0.0	77.0	85.7	3.7
ATX9202-3Ru	361.5	250.6	107.5	100.2	39.5	3.4	92.2	18.6	3.4
ATX91137-1Ru	349.1	240.6	74.6	89.6	63.4	13.1	44.1	64.4	4.0
CORN-8	343.5	212.1	84.7	84.5	42.9	0.0	64.2	67.3	3.1
TXNS223	342.6	215.7	77.5	93.9	44.3	0.0	78.0	48.9	3.3
TXNS112	318.6	209.2	107.7	55.9	45.5	0.0	82.8	26.6	3.3
Russet Norkotah	310.1	171.4	97.3	41.4	32.7	0.0	106.5	32.2	3.1
CORN-3	267.0	139.2	52.1	49.4	37.8	0.0	61.3	66.6	2.8
TXNS102	263.2	131.7	60.3	42.9	28.6	0.0	92.5	39.0	3.0
TXNS296	262.2	143.3	70.2	58.6	14.5	0.0	70.9	47.9	3.1
ATX9332-12Ru	246.4	176.7	72.9	65.4	38.5	0.0	37.0	32.7	3.0
Average	306.4	189.1	80.5	68.2	38.8	1.6	72.9	44.4	3.2
L.S.D. (.05)	72.0	59.6	32.8	31.3	ns	6.9	30.5	ns	

¹ 1=very poor to 5= excellent

Texas Table 6.

Total yield, total yield of U.S. No. 1, under 4 ounce and culls/No. 2 potatoes and general rating of 13 entries in the Advanced Red Selection Trial grown near Dalhart, Texas-2000.

Variety Or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt/A				Under 4 oz.	Culls/ No. 2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz		
NDTX8-731-1R(CO)	431.6	337.6	102.3	161.1	69.1	5.2	20.0	4.0
NDTX8-731-1R(ST)	213.0	148.2	51.3	65.9	31.0	0.0	15.5	2.7
NDTX4304-1R	208.7	136.5	48.9	58.6	22.8	6.3	45.5	3.1
NDTX5407-1R	207.6	134.0	57.1	53.3	23.6	0.0	2.9	3.0
Red LaSoda	186.6	160.8	51.3	46.2	63.3	0.0	0.0	3.2
NDTX4271-5R	179.5	138.2	56.8	45.2	36.2	0.0	14.5	3.0
COTX93032-1R	154.9	63.4	30.0	33.4	0.0	0.0	49.9	2.8
COTX93053-4R	152.7	95.5	57.1	26.5	11.9	0.0	8.1	3.2
NDTX5438-11R	127.8	81.3	27.4	42.9	11.0	0.0	0.0	3.1
COTX93069-5R	124.9	106.5	25.2	68.8	0.0	12.6	0.0	2.2
NDTX5067-2R	82.3	47.0	26.1	20.8	0.0	0.0	1.9	2.2
COTX93068-1R	42.9	27.1	7.4	16.1	3.6	0.0	1.3	2.8
NDTX4828-2R	13.9	5.2	5.2	0.0	0.0	0.0	0.0	2.0
Average	163.6	113.9	42.0	49.1	20.9	1.8	12.3	2.8
L.S.D. (.05)	47.3	45.8	30.7	27.6	25.0	5.2	21.6	18.7

¹ 1=very poor to 5= excellent

Texas Table 7.

Total yield, total yield of U.S. No.1, under 4 ounce and culls/No.2 potatoes and general rating of 5 entries in the Advanced Chipping Selection Trial grown near Dalhart, Texas-2000.

Variety Or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt/A				Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz		
NDTX4930-5W	420.3	369.9	92.0	191.7	86.2	0.0	20.3	3.8
Atlantic	346.7	286.6	142.7	113.6	30.3	0.0	0.6	3.3
ATX85404-8W	338.1	264.4	121.1	122.0	21.3	0.0	0.1	2.9
W1374	318.9	251.8	124.0	107.2	20.7	0.0	0.6	3.1
W1443	282.8	147.2	111.0	29.1	7.1	0.0	0.0	3.2
Average	341.3	264.0	118.1	112.7	33.1	0.0	4.3	3.2
L.S.D. (.05)	68.3	53.7	ns	30.8	20.1	ns	ns	

¹ 1=very poor to 5= excellent

Texas Table 8. Total yield, total yield of U.S. No. 1, under 4 ounce and culls/No. 2 potatoes and general rating of 9 entries in the Yellow Flesh Trial grown near Dalhart, Texas-2000.

Variety Or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt/A				Under 4 oz.	Culls/ No. 2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz		
Morning Gold	415.7	228.5	143.3	62.2	23.0	0.0	43.6	3.7
Vivaldi	347.0	153.2	84.8	42.7	25.7	0.0	9.2	4.1
Yukon Gold (CO)	327.1	228.1	113.3	79.4	35.3	0.0	7.7	3.6
Island Sunshine	253.8	93.5	65.4	25.7	2.5	0.0	28.3	2.5
Adora	271.1	182.4	93.0	69.7	19.7	0.0	22.5	3.1
TX1674-1W/Y	177.5	148.4	40.7	44.3	51.3	12.1	9.0	2.6
TX1523-1Ru/Y	154.0	126.1	45.0	42.9	35.6	2.7	3.6	2.8
BTX1544-2W/Y	152.5	88.6	44.1	29.1	15.5	0.0	31.2	2.7
Yukon Gold (ST)	121.5	103.1	28.6	33.4	34.6	6.5	8.0	2.7
Average	208.2	138.6	61.4	46.3	27.8	3.0	15.8	2.9
L.S.D. (.05)	68.2	66.1	36.3	28.9	26.2	ns	23.3	18.6

¹ 1=very poor to 5= excellent

Virginia

S.B. Sterrett and C.P. Savage, Jr.

Introduction

Trials were conducted at the Eastern Shore Agricultural Research and Extension Center in Painter, Virginia. Promising clones were evaluated for yield, tuber quality and appearance, vine and tuber maturity, processing (chip) potential and freedom from internal and external tuber defects. To address a potential marketing niche, red-skinned clones were evaluated for suitability in this growing area.

Methods

All trials were planted on a Bojac sandy loam soil. Trials were planted on March 8, except the commercial trial which was planted on March 15, in single row plots 25 feet in length with 3 feet between rows, with 12 inch within row spacing for all but the red-skinned trial, which was planted at 8 inches. A randomized complete block design with four replications was used for all trials. Fertilizer (100 lbs. N, 44 lbs. P, and 83 lbs. K/A) was banded at planting. Herbicide (1.33 lbs. Ai/A S-metolachlor and 0.5 lb ai/A linuron) was applied at drag off on April 6. All plots were sidedressed with 50 lbs N/A (UAN) on May 2. Irrigation (1 inch) was applied on May 12 and 19. Round-white trials were harvested on July 10, the red-skinned trial on July 11. Specific gravity was determined by the weight in air/weight in water method for all trials. Chip samples were held at ambient temperature and chipped on July 13.

Growing Conditions

Warm temperatures and moderately dry soil conditions at planting were followed by cooler weather and 3.25 inches of rainfall within the first two weeks after planting. Early conditions had little effect on plant establishment of round-white clones, but establishment of red-skinned clones was reduced to 72 to 81% based on stand counts after emergence. Warm, dry conditions prevailed in May with 19 days of maximum temperature exceeding 77°F. Rainfall was more timely, but maximum temperatures exceeded 77°F on 25 days in June. Cold, wet weather early in the season, followed by hot, dry conditions starting within 60 days of planting, was conducive to the development of hollow heart or internal heat necrosis (IHN) in susceptible clones.

Results

Round-White Trial. Of the entries in this trial, only the marketable yields of CK87-1008 and NYT 28-1 were significantly lower than Superior. A large tuber set, but insufficient tuber size was noted for CK87-1008. Size distribution of NYT28-1 also favored smaller tubers, but sunburn and susceptibility to scab also contributed to low marketable yields for this clone. Marketable yields of Atlantic, B1722-5 and B1878-7 exceeded that of Superior. Tubers of B1722-5 were attractive, with good skin set and few defects. With the high percentage of tubers of B1878-7 greater than 3.25" diameter and the observation that the largest tubers tended to be rough and less attractive, planting this clone at closer spacing may be advantageous. However, susceptibility to second growth, sun burn and sprouting are serious concerns. Yields of B0564-9 were similar to that of Superior and tubers were attractive. However, 25% hollow heart in B0564-9 is also a concern.

Commercial Trial. Late arrival of seed tubers of Envol delayed planting until March 15. Total yields were similar, but marketable yields of Envol were significantly lower than Superior. The percentage of tubers in size 4 category was greater for Envol. Envol appears to be an early maturing cultivar and the long growing season may have contributed to the high percentage of tuber rot.

Chip Trial. All entries except Snowden and AF1569-2 were significantly lower in marketable yield than Atlantic. While the chip color of both was lighter than that of Atlantic, low specific gravity and susceptibility to IHN in AF1569-2 would preclude use as a chipping variety. Second growth was a concern for many of the numbered entries in this trial. However, defects were noticeably absent for B0564-8. Since the chipping industry is now emphasizing a larger proportion of small tubers to address the increasing market share of single serving bags, the greater proportion of B0564-8 in the size 2 and 3 categories may also be an asset.

Red-skinned Trial. Growers in this growing area are looking for bright red color, smooth skin, good skin set, and a size distribution that includes approximately 33% in the size one category. Of the entries tested, B1521-2, B1758-3 and CO86218-2 most nearly fit these criteria. Tubers in category 1 for Red Norland and Dark Red Norland were 46 and 49% respectively, but total yield of these entries was poor and not significantly different from each other. Yields of Chieftain and Red LaSoda were high,

but skin color was more pink than red. The long growing season (125 vs 110 days typically) served to exacerbate this problem. With the exception of Chieftain's susceptibility to IHN, internal and external defects were not a significant problem in this trial.

Ratings

Vine and tuber ratings were completed using the rating system of the U.S. Department of Agriculture regional project NE-184.

For vine ratings:

maturity : 1=senesced, 9 = totally green;

air pollution: 1 = defoliated, 9 = no visible symptoms.

For tuber rating:

shape: 1 = round, 5 = oblong, 9 = very long (cylindrical);

appearance: 1 = very poor, 9 = excellent;

skin maturity: 1 = totally peeled during harvest and grading, 9 = skin intact;

tuber defects: 1 = severe, 9 = none.

Ratings of heat necrosis were made on 20 tubers in the size range 2 1/2" to 3 1/4".

Acknowledgments

We gratefully acknowledge the financial support of the Virginia Irish Potato Board and USDA, CSREES for these trials. We thank Wise Foods, Inc., Berwick, Pennsylvania for their assistance in these evaluations and chip color determinations. We also gratefully acknowledge provision of seed by Kathleen G. Haynes, USDA-Beltsville; Robert L. Plaisted, Cornell University; and Alvin F. Reeves, University of Maine. The support of the commercial trial by Can AGRICO Potato Corp., Grand Falls, New Brunswick and LaPatate, Lac St-Jean, Quebec is greatly appreciated.

Virginia Table 1. Yield, marketable yield, percentage of yield by grade size distribution, specific gravity, and chip color of round-white trial grown for 124 days at Painter, Virginia, 2000.

Clone ¹	Yield >1-1/2" cwt/A	Marketable Yield Percentage cwt/A	Size Distribution ² By class (%)				Percentage Over 1.88" 2.5"	Specific Gravity ³	Chip Color ⁴	
			1	2	3	4				
Early-main season										
Atlantic	378	333	10	18	56	14	88	1.087	4	
Superior (std)	304	271	9	16	61	12	89	1.068	-	
AF1921-4	361	276	10	14	47	16	76	1.083	-	
AF1921-9	315	236	11	14	44	17	75	1.072	-	
AF1938-3	337	294	7	9	46	31	87	1.073	3	
B0564-9	338	303	9	11	48	31	90	1.073	3.5	
B1722-5	418	340	10	10	46	25	81	1.067	3.5	
B1870-3	342	256	19	26	44	5	75	1.055	3.5	
B1878-7	419	385	4	6	43	43	92	1.066	3	
CK87-1008	242	62	36	18	9	0	26	1.059	-	
NY121	328	279	9	11	41	33	85	1.077	2	
NYS28-2	255	205	15	23	51	6	80	1.068	2	
NYS32-3	363	302	6	6	36	42	83	1.078	2	
NYT28-1	259	175	22	20	39	9	67	1.064	3.5	
Waller Duncan (K=100, P=0.50)	52	45								
Commercial ⁵										
Envol	278	210	5	9	42	25	76	1.068	-	
Superior	286	247	7	12	62	12	86	1.066	-	
Waller Duncan (K=100, P=0.050)	40	35								

¹ Planted March 8 (except commercial trial planted on March 15), harvested July 10.

² Size distribution 1 = 1.5-1.88"; 2 = 1.88-2.5"; 3 = 2.5-3.25"; 4 = >3.25".

³ Determined by weight in air/weight in water method.

⁴ Unreplicated samples, 124 days after harvest: 1-4 = acceptable, 5 = marginal, 6 or greater = unacceptable.

Virginia Table 2. Yield, marketable yield, percentage of yield by grade size distribution, specific gravity, and chip color of chip trial grown for 124 days at Painter, Virginia, 2000.

Clone ¹	Yield >1-1/2" cwt/A	Marketable Yield		Size Distribution ²				Percentage Over		Specific Gravity ³	Chip Color ⁴
		cwt/A	Percentage of std	1	2	3	4	1.88"	2.5"		
Atlantic (std)	393	352	100	9	15	57	18	89	75	1.084	4
Sinora	348	252	72	21	25	37	12	74	49	1.079	-
Snowden	349	319	91	10	16	61	12	89	73	1.081	2
Superior	274	240	68	11	16	61	10	87	70	1.069	3
AF1455-20	284	245	70	9	15	54	18	86	71	1.076	-
AF1569-2	373	323	92	8	11	42	34	87	76	1.066	2.5
AF1775-2	317	260	74	9	11	39	33	83	71	1.084	4
B0178-34	328	261	74	17	24	50	5	79	55	1.086	3.5
B0564-8	322	256	73	16	23	49	7	79	56	1.077	3
B1327-6	298	222	63	18	20	49	6	74	55	1.070	-
B1709-6	290	256	73	11	15	57	17	88	74	1.078	2
B1806-8	259	190	54	24	26	43	4	73	47	1.076	2
B1826-1	287	236	67	10	15	46	21	83	68	1.068	3
B1870-17	362	274	78	19	25	44	7	76	51	1.066	2.5
B1871-1	296	225	64	17	23	47	6	77	53	1.061	2.5
B1880-4	254	207	59	15	21	57	4	81	61	1.073	4
B1881-6	307	208	59	26	28	37	3	68	40	1.073	2.5
NY120	254	205	58	16	20	51	10	81	60	1.075	3
NYT35-34	332	216	61	33	34	28	2	64	30	1.082	2
Waller Duncan	88	69									
(K=100, P=0.050)											

¹ Planted March 8 (except commercial trial planted on March 15), harvested July 10.

² Size distribution 1=1.5-1.88"; 2=1.88-2.5"; 3=2.5-3.25"; 4=>3.25".

³ Determined by weight in air/weight in water method.

⁴ Unreplicated samples, 124 days after harvest: 1-4 = acceptable, 5 = marginal, 6 or greater = unacceptable

Virginia Table 3. Yield, marketable yield, percentage of yield by grade size distribution, specific gravity, and chip color of red-skinned trial grown for 125 days at Painter, Virginia, 2000.

Clone ¹	Yield >1-1/2" cwt/A	Marketable Yield Percentage cwt/A	Size Distribution ² By class (%)				Percentage Over		Specific Gravity ³	Chip Color ⁴
			1	2	3	4	1.88"	2.5"		
Chieftain	442	373	13	16	53	16	84	69	1.061	-
Dark Red Norland (std)	231	111	49	32	15	0	48	15	1.057	-
Red LaSoda	364	292	17	18	54	9	80	63	1.061	-
Red Norland	224	118	46	32	20	0	52	20	1.057	-
B1521-2	290	204	28	29	41	0	70	41	1.067	-
B1523-4	324	208	33	27	36	1	64	37	1.067	-
B1758-3	311	183	39	32	26	1	59	27	1.065	-
B1758-4	249	143	40	28	30	<1	57	30	1.065	-
CO86218-2	300	168	40	25	31	<1	56	31	1.063	-
Waller Duncan	40	35								
(K=100, P=0.050)										

¹ Planted March 8 (except commercial trial planted on March 15), harvested July 10.

² Size distribution 1=1.5-1.88"; 2=1.88-2.5"; 3=2.5-3.25"; 4=>3.25".

³ Determined by weight in air/weight in water method.

⁴ Unreplicated samples, 124 days after harvest: 1-4 = acceptable, 5 = marginal, 6 or greater = unacceptable

Virginia Table 4. Plant and tuber characteristics and tuber defects for round white and red-skinned clones grown at Painter, Virginia, 2000.

Clone	Tuber Defects ²													
	Vine ¹				Tuber				Heat Necrosis					
	Size	Maturity	Pollution	Shape	Appear.	Skin		Percent	Sun	Second	Growth	Crack	Tubers	Rating
						Matur.	Defects								Sprouts	burn
Round-White: early and main season														
Atlantic	8	7	9	3	6	6	2	9	9	9	9	9	10	6
Superior	5	5	8	4	6	8	2	9	9	9	9	9	0	9
AF1921-4	7	6	9	3	6	5	14	9	5	9	9	9	0	9
AF1921-9	6	6	9	3	5	4	14	9	9	9	9	9	4	8
AF1938-3	7	6	9	3	6	5	6	9	9	6	7	7	0	9
B0564-9	7	6	7	2	7	7	2	9	7	9	9	9	0	9
B1722-5	8	7	8	3	7	8	9	9	9	8	6	6	2	8
B1870-3	6	5	9	3	7	7	7	9	9	7	9	9	1	8
B1878-7	8	7	9	3	7	6	4	9	9	9	9	9	1	8
CK87-1008	6	6	9	4	5	6	38	7	6	4	9	9	2	7
NY121	7	7	9	2	7	7	6	7	5	7	9	9	1	8
NYS28-2	8	9	8	3	5	4	5	9	7	7	9	9	1	8
NYS32-3	9	8	9	3	5	6	11	9	6	6	9	9	1	7
NYT28-1	5	4	8	2	6	6	11	9	6	9	9	9	1	8
Round-White: commercial														
Superior	6	5	8	4	5	7	6	9	7	8	9	9	0	9
Envol	5	5	8	3	7	8	9	9	9	9	9	9	0	9
Chip Trial														
Atlantic	7	7	9	2	7	6	2	9	7	9	9	9	6	7
Sinora	6	5	9	3	6	6	6	8	7	7	9	9	0	9
Snowden	8	7	9	2	7	5	1	9	8	8	9	9	4	7
Superior	6	6	9	3	6	7	2	9	9	9	9	9	1	8
AF1455-20	9	8	9	3	5	4	5	9	9	8	9	9	4	6
AF1569-2	7	8	9	2	8	6	6	9	5	9	9	9	3	7
AF1775-2	9	9	9	4	5	3	9	9	7	6	9	9	4	6
B0178-34	9	8	9	2	7	7	4	9	7	7	9	9	2	7
B0564-8	7	7	6	2	7	8	5	9	9	9	9	9	0	9
B1327-6	7	9	8	4	2	3	8	8	9	6	7	7	2	8
B1709-6	6	6	9	2	7	6	1	9	9	9	9	7	2	7
B1806-8	6	5	8	3	5	6	3	9	9	9	7	9	0	9

Virginia Table 4. Continued.

Clone	Tuber Defects ²												
	Vine ¹				Tuber			Heat Necrosis					
	Size	Maturity	Pollution	Shape	Appear.	Skin	Percent Defects	Sprouts	Sun burn	Second Growth	Growth Crack	Tubers	Rating
B1826-1	8	6	9	3	5	6	7	7	9	9	9	3	8
B1870-17	6	4	6	3	7	8	5	8	7	6	0	0	9
B1871-1	8	7	8	2	6	7	7	9	9	9	9	0	9
B1880-4	6	5	9	3	4	4	4	8	9	4	9	0	9
B1880-6	7	6	9	3	6	7	7	9	9	6	9	0	9
NY120	9	9	9	4	5	5	3	9	9	6	9	0	9
NYT35-34	8	7	9	2	7	6	3	9	9	7	9	2	7
Red Skinned Trial													
Chieftain	7	5	6	3	5	6	2	7	7	7	9	0	9
Dark Red Norland	4	2	4	2	7	8	3	9	9	9	9	0	9
Red LaSoda	5	5	6	3	5	5	3	9	9	9	9	0	9
Red Norland	4	2	4	2	6	8	2	9	9	9	9	0	9
B1521-2	8	8	7	2	7	6	1	9	9	9	9	0	9
B1523-4	6	5	7	3	7	7	3	7	9	7	9	0	9
CO86218-2	9	8	8	3	6	5	3	9	9	7	9	0	9
B1758-3	7	6	7	2	6	6	2	9	9	9	9	0	9
B1758-4	7	6	9	2	5	6	5	9	9	9	9	0	9

^{1,2} See NE-184 rating scale.

Wisconsin

Horia Groza, Bryan Bowen, and Jiming Jiang.

Within the Wisconsin breeding program, the advanced selections are tested in the fifth and sixth field generations in replicated trials at two locations. After being included for two other years in the State field trial system, the best lines are tested for three years in the North Central Regional Trial (NCRT).

The 5th and 6th field generation trials were conducted on irrigated sandy soil in Rhinelander, under shorter and colder season conditions, and Hancock, under longer and warmer season conditions. They were planted in a randomized block design with single row plots of 20 hills/plot, three replications and 12"x36" spacing. Planting, vine killing and harvest date: (1) in Rhinelander - 5/09, 8/18 and 8/30; (2) in Hancock - 4/25, 8/28 and 9/11, respectively. The NCRT was conducted in Hancock under exactly the same conditions and dates as the previously mentioned Hancock trials but in a randomized block design of four replications.

The yield was graded into A size ($>1\frac{7}{8}$ diameter), B size ($<1\frac{7}{8}$) and culls. The vigor at the second blooming, vine maturity, early blight at the beginning of August and common scab on tubers were scored on a 1-9 scale (1 = very weak, very early or very susceptible, respectively). For the North Central Regional Trial the scab frequency was recorded in percentage. The tubers were described for shape (1=round, 5=oval, 9=long) and shape uniformity (9=very uniform). Five tubers larger than 8 oz were cut lengthwise for scoring internal defects. A general preference score for tuber external and internal appearance was used (1=undesirable, 2=acceptable, 3=good, 4=very good). Specific gravity was determined by measuring the weight in air and water and the table values are expressed as $(SG - 1) \times 1000$. Chip color was scored for five tubers/plot, from 1 to 10, according to the PCII Color Chart (where 1 is the lightest and 4 is the maximum accepted). The frying time interval lasted until "the bubbling" stopped (this way one measures the reducing sugars factor and eliminates the solids factor). The chip color for the trials including the advanced selections was determined at reversion (a month storage at 55F) and after three and six month storage at 40F with and without reconditioning (two weeks at 65F). The chip color of the North Central Regional Trial entries was measured after one month at 55F and three months at

40F, with and without reconditioning. For all the 40F storage treatments in 2000 the tubers did undergo a prior twenty day period of healing and gradual cooling treatment from 60F to 40F.

Characteristics of experimental lines and standards in NCRT, Hancock 2000.

Atlantic - heavy netted-skin, round-oval, uniform, big tuber size, deep bud end, lenticels, pitted scab, good yielding capacity, medium high specific gravity, unacceptable chip color at reversion and after three month cold storage, medium- high incidence of hollow heart, medium resistance to early blight.

Snowden - light netted-skin, round-oval/oval, medium-deep eyes, uniform medium tuber size, low frequency of shallow scab, Rhizoctonia, good yielding capacity, high specific gravity, medium good chip color at reversion, best chip color after three months.

NorValley - light smooth-skin, medium-deep eyes, variable tuber size but in the big size range, round-oval with a trend to pear shape, good yielding capacity, Rhizoctonia, soft rot, medium-low specific gravity, medium-good chip color at reversion and unacceptable color after three months.

Red Pontiac - medium-dark red-skin, buckskin, patches of fading color, deep eyes, rough tuber shape, very deep eyes, variable tuber size up to 12 oz tubers, intense skinning at harvest, excellent yielding capacity, high resistance to early blight.

Dark Red Norland - medium-red color, buckskin, very intense fading of color, oval/round-oval tubers, big size tubers, good early yielding capacity, highly susceptible to early blight, excellent internal quality, medium resistance to common scab.

Russet Norkotah - medium-dark/dark russet, excellent long blocky tuber shape, high uniformity of shape, variable size, medium-small tubers, medium-good yielding capacity, good internal quality, generally very susceptible to early blight but less so in 2000.

Russet Burbank - light -russet, big size, variable shape, mainly pointed tubers and dumpybells, good yield capacity, medium high incidence of hollow heart, medium high specific gravity, Rhizoctonia.

AO 87277-6 rus - medium-light russet, big size tubers, a trend to bottle neck shape, good yield capacity, soft rot, medium-high specific gravity, best fry color at reversion among all the russet entries of the trial, extremely high incidence of hollow heart.

MSA 091-1 - light skin, oval/round-oval tubers, large tuber size, rough tubers with deep eyes, good skin set, medium-good yield capacity, medium- high/high specific gravity, internal brown spot, resistant to scab, Rhizoctonia, no rotten tubers.

MSB 107-1 - light skin, round-oval tubers, folded bud end, large tubers, excellent yielding capacity, highly uniform tuber shape and size, a low frequency of protruding eyes, lenticels, medium- intense skinning at harvest, excellent internal quality, ranked second in the trial among chipping lines for the tuber traits, medium- high specific gravity, dark color after cold longer storage.

MSE 018-1 - light skin, round -oval slightly flat, attractive tuber appearance, ranked first among the chipping lines for tuber traits and third within the entire field trial, variable tuber size, very uniform tuber shape, very good yielding capacity, high specific gravity, very late maturity, high resistance to early blight. No scab was noticed.

MSF 737-8 - light white skin, round-oval/oval tubers, deep eyes, deep bud end, very large tuber size, lenticels, medium- high yielding capacity, medium- high specific gravity, good internal quality.

MN 17989 R - dark red -skin, oval large tubers, skinning at the time of harvest, trend for protruding eyes, medium yielding capacity, medium- high incidence of hollow heart, medium- high resistance to early blight, soft rot.

MN 17993 R - dark red skin, smooth tubers, good tuber appearance, color fading, lenticels, very much skinning at harvest, round oval large tubers, good fry color at reversion, high resistance to early blight.

MN 18365 R - dark red skin, smooth, medium- sized round-oval/oval tubers, very good tuber appearance, ranked first among the red entries, excellent skin set, high tuber uniformity, lenticels, medium-low yields, very good internal tuber quality.

ND 3196 R - medium-dark red skin, fading color, buck skin, deep eyes, very much skinning at harvest, medium sized round oval tubers, unattractive tuber appearance, medium good yielding capacity, very high incidence of hollow heart, resistance to early blight.

ND 3574-5 R - excellent dark red color of the skin, smooth, medium size oval tubers, attractive appearance, some russetting and buck skin, earliness, good yielding capacity, growth cracks; no soft rot was noticed.

ND 4093-4 rus - medium-dark russet, long , blocky tubers of very attractive appearance, ranked first in the entire trial and first among the russets, good size tubers, medium yielding capacity, medium specific gravity, bruising, medium-high incidence of hollow heart, low vine vigor, medium resistance to early blight, some soft rot.

W 1355-1 - light netting, smooth round-oval tubers of medium size, high tuber uniformity for shape and size, good skin set, medium yielding capacity, good specific gravity, good chip color at reversion, Rhizoctonia, medium resistance to early blight.

W 1368 - light netting, smooth, round-oval/oval tubers of medium size, medium yielding capacity, acceptable chip color at reversion, good specific gravity.

W 1386 - light netting, smooth round-oval tubers of variable size, Rhizoctonia, lenticels, bruise, excellent skin set, excellent yielding capacity, good specific gravity, resistance to early blight.

W 1431 - netting, very smooth round-oval flat tubers, large size, uniform tuber shape, ranked fifth in entire trial and the third among the chipping entries, very good yielding capacity, good specific gravity, good chip color at reversion, medium resistance to scab, resistant to Verticillium.

V 0123-25 - smooth tubers of medium-small size, round- oval/oval, good skin set, medium- low yielding capacity, earliness, medium- low specific gravity, good chip color at reversion.

V 0056-1 - round-oval tubers of medium- small size, russetting, lenticels, medium- high yielding capacity, Rhizoctonia, low specific gravity, good chip color at reversion, medium-high incidence of hollow heart.

V 0024-6 - large, round-oval tubers, smooth, deep bud end, excellent yielding capacity, medium- low specific gravity, no scab, resistance to early blight.

V 0168-3 rus - medium-dark russet skin, short blocky tubers of medium- good size, large width diameter, Rhizoctonia, medium- high yielding capacity, low specific gravity, excellent internal tuber quality.

Amandine - new release of Germicopa (France), white, smooth skin, long, slightly curved at one end tuber shape, very attractive and unique appearance, medium tuber size, medium- low yielding capacity, earliness, very low specific gravity, excellent cooking taste, medium- high incidence of internal brown spot.

Marine - new release of Germicopa (France), heat sprouts, white, smooth skin with russetting patches, yellow flesh, long tubers of large size, trend to pear shape, medium- low yielding capacity, earliness, low specific gravity, unacceptable for extremely high internal brown spots.

Sandy - new release of Germicopa (France), white skin, round tubers with deep eyes, good skin set, no scab, excellent yielding capacity, excellent internal tuber quality, better chip color than Norvalley after cold storage, very characteristic small dark green leaflets, highly resistant to early blight.

Wisconsin Table 1. Two year performance of advanced selections in Hancock(120 days). 1999-2000.

Cultivar	Yield		EBt	Scb	Pref	SpGv	Chip Color			
	US#1	VMt					Rev	3mD	3mR	HH
W 2324-1	755	6.4	7.5	9.0	1.7	79	4.0	6.3	5.5	01
W 2062-1	638	5.8	7.7	9.0	2.1	78	5.6	6.0	6.3	07
W 2319-3	582	6.6	7.3	9.0	2.2	77	4.0	8.7	8.0	20
W 1980-4	545	5.3	7.1	8.3	1.9	87	5.0	5.0	4.4	00
Atlantic	540	5.8	7.5	9.0	2.2	88	4.4	7.4	7.2	25
Snowden	561	5.5	6.8	8.7	2.0	85	3.4	4.8	5.4	05
W 2033-8	564	6.5	6.8	9.0	2.2	91	4.7	8.3	7.8	03
W 2326-3	539	5.5	6.4	9.0	2.0	82	4.0	8.4	7.2	11
W 2371-1r	571	5.9	7.0	9.0	2.1	67	7.6	9.6	8.0	07
R.Burbank	481	6.0	7.3	9.0	1.6	77	6.8	9.8	9.4	04
Goldrush	402	5.5	5.3	9.0	1.9	76	7.3	9.9	9.1	00
RNorkotah	363	4.5	3.8	8.7	2.5	70	7.0	9.9	9.3	03
W 2275-9R	507	6.2	7.1	9.0	2.0	66	8.1	9.9	9.9	00
DRNorland	457	5.2	4.8	9.0	1.6	62	7.4	9.9	9.9	00

Yield = US#1 cwt/A; VMt: Vine maturity (1=early, 9=late); EBt: Early blight (1=very susceptible, 9=none); Scb: Scab (1=very susceptible, 9=none); Pref: Preference, general rating (1=not desired, 2=acceptable, 3=good, 4=very good); SpGv: Specific Gravity -1 x 1000; Chip Color: Rev = Reversion (1 month storage at 55F), 3m = 3 month storage at 40F (D=direct, R = reconditioned 14 days at 65F). Visual scores in CPII scale (1=light, 10=dark). HH: % hollow heart.

Wisconsin Table 2. Two year performance of advanced selections in Rhinelander (100 days). 1999-2000.

Cultivar	Yield		EBt	Scb	Pref	SpGv	Chip Color			HH
	US#1	VMt					Rev	3m0	3mR	
W 2324-1	450	6.2	7.5	6.5	1.4	83	3.1	6.4	5.2	00
W 2319-3	399	7.7	7.6	8.0	1.9	73	2.9	6.8	7.3	01
Atlantic	384	6.1	7.0	8.4	2.6	86	3.3	5.9	5.7	14
W 1949-1	363	5.8	6.9	8.6	2.3	83	2.7	6.3	5.2	00
Snowden	351	5.9	6.8	8.1	2.1	82	3.4	5.6	4.2	10
W 2319-4	347	5.9	6.8	5.9	1.7	80	2.7	4.0	3.6	04
W 1980-4	292	5.1	6.7	7.7	1.6	90	2.7	3.4	3.4	03
Goldrush	317	5.4	5.3	8.7	2.1	64	6.6	9.9	9.6	00
W 2371-1r	288	6.3	6.8	7.3	1.7	70	6.9	9.1	8.7	00
R.Burbank	267	5.8	6.8	9.0	1.8	71	5.9	9.3	8.8	03
W 2249-1r	264	7.3	8.3	8.2	2.0	75	6.7	8.8	8.4	03
RNorkotah	190	2.3	2.3	7.8	2.7	61	6.3	9.8	9.7	00
DRNorland	305	3.9	3.2	8.7	2.1	56	6.1	9.9	9.8	00
W 2275-9R	291	5.8	6.5	7.8	2.0	67	6.2	9.7	9.5	00

Yield = US#1 cwt/A; VMt: Vine maturity (1=early, 9=late); EBt: Early blight (1=very susceptible, 9=none); Scb: Scab (1=very susceptible, 9=none); Pref: Preference, general rating (1=not desired, 2=acceptable, 3=good, 4=very good); SpGv: Specific Gravity -1 x 1000; Chip Color: Rev = Reversion (1 month storage at 55F), 3m = 3 month storage at 40F (D=direct, R = reconditioned 14 days at 65F). Visual scores in CPII scale (1=light, 10=dark). HH: % hollow heart.

Wisconsin Table 3. Advanced Selection Trial 1, Rhinelander 2000 (101 days). Excerpt from a 50 entry trial.

Cultivar	Cwt/A		Vines			Tubers			
	Tot	A's	VMt	Vig	EBt	Skg	TbS	TbU	Scb
Superior	213	193	1.7	2.3	1.3	9.0	8.7	2.3	7.0
Snowden	426	374	6.0	5.5	7.0	8.3	8.3	2.3	7.7
Atlantic	409	366	5.8	5.8	7.3	8.3	7.7	1.7	7.8
NorValley	313	274	5.3	5.2	5.5	9.0	8.7	2.3	8.7
Dak.Pearl	169	150	6.0	4.7	6.7	9.0	8.9	1.0	9.0
W 1201	455	430	6.8	5.5	7.3	8.0	8.7	3.3	8.9
W 2114-5	413	373	6.2	4.5	6.7	6.0	8.3	3.0	8.2
W 2121-2	398	375	5.3	5.0	5.8	8.2	8.3	3.0	8.7
W 2127-9	335	274	4.3	4.5	3.0	9.0	9.0	3.0	8.3
W 2128-8	501	465	6.7	5.8	7.0	4.3	7.7	1.0	8.3
W 2132-1	358	284	6.5	5.0	7.7	8.3	8.3	3.3	6.7
W 2132-2	396	342	6.3	5.3	8.2	7.0	8.0	3.0	8.6
W 2133-1	434	383	7.2	4.8	7.8	5.0	8.0	3.3	8.9
W 2140-2	324	301	5.0	4.7	5.2	8.3	8.3	3.0	8.3
W 2143-1	412	367	5.7	5.3	6.2	5.3	7.7	2.3	8.0
W 2145-1	338	307	5.8	5.2	7.3	8.2	9.0	1.7	8.3
W 2145-6	375	319	5.7	4.8	7.0	8.3	8.3	1.0	8.0
W 2145-11	340	278	5.0	5.3	5.5	8.3	9.0	3.3	8.3
W 2148-2	396	335	4.8	4.7	5.0	8.2	8.7	3.0	8.9
W 2152-2	375	337	5.5	4.8	6.0	8.3	9.0	2.7	8.0
W 2166-3	458	364	7.0	5.0	8.3	7.0	7.7	2.3	8.0
W 2192-2	356	336	5.3	4.5	6.3	8.7	8.3	1.7	7.6
W 2203-2	376	342	5.3	5.7	6.2	7.6	7.7	2.3	8.5
W 2216-1	436	371	8.0	5.8	8.2	5.3	8.0	1.7	8.8
W 2216-2	350	316	4.5	4.5	5.2	8.7	8.7	2.0	8.9
W 2217-1	385	306	7.5	6.5	8.5	5.7	7.7	2.0	8.3
W 2225-2	340	252	6.2	5.0	7.3	8.3	7.7	4.0	7.0
W 2238-1	443	403	6.3	5.0	7.2	8.3	8.2	1.7	7.7
W 2242-1	374	330	5.0	4.5	5.7	9.0	8.6	1.7	8.9
DRNorland	215	189	4.8	4.8	3.8	9.0	9.0	2.3	9.0
W 1874-1R	383	292	6.2	5.0	5.8	8.0	8.3	1.0	8.7
W 2186-4R	382	343	5.7	4.5	6.3	7.8	8.7	1.0	7.7
W2275-14R	323	258	3.0	2.3	1.7	9.0	9.0	1.7	7.9
Average	340	293	5.3	4.8	5.6	8.0	8.5	2.5	8.2

Tot = Total yield, A's = A size (>1"7/8 tubers) yield; VMt: Vine maturity (1=early, 9=late); Vig: Vine vigor (1=weak, 9=vigorous); EBt: Early blight (1=very susceptible, 9=none); Skg: Skinning (9 = no skinning); TbS: Tuber shape (1=round, 9=long); TbU: Tuber shape uniformity (9=very uniform); Scb: Scab (1=very susceptible, 9=none).

Wisconsin Table 4. Advanced Selection Trial 1, Rhinelander 2000 (101 days). Excerpt from a 50 entry trial.

Cultivar	Int. Defects %			SpGv	Chip Color				
	HH	IBS	VD		Rev	3mD	3mR	6mD	6mR
Superior	07	07	07	64	3.7	5.4	5.2	9.0	9.0
Snowden	00	00	13	88	3.1	6.4	5.3	8.5	8.5
Atlantic	07	00	07	87	3.1	6.5	5.9	9.1	9.1
NorValley	00	00	07	74	2.9	5.6	5.0	9.1	9.1
Dak.Pearl	07	00	07	74	3.0	7.1	6.6	8.9	8.9
W 1201	00	00	00	87	3.0	5.5	5.2	8.9	8.9
W 2114-5	20	00	07	77	3.1	5.0	4.9	8.7	8.7
W 2121-2	00	00	07	76	3.3	3.6	3.5	7.3	7.3
W 2127-9	00	00	07	73	3.4	5.6	5.0	8.9	8.9
W 2128-8	00	00	13	89	3.1	6.2	5.0	9.2	9.2
W 2132-1	00	00	07	81	3.6	5.9	6.2	9.1	9.1
W 2132-2	00	00	00	79	3.7	6.7	4.9	9.0	9.0
W 2133-1	00	00	07	75	3.0	7.2	6.3	9.3	9.3
W 2140-2	00	00	20	82	3.9	6.8	6.3	9.2	9.2
W 2143-1	27	00	20	74	4.1	6.9	7.8	9.5	9.5
W 2145-1	00	00	00	79	3.5	8.4	8.0	9.5	9.5
W 2145-6	00	00	00	82	3.2	7.0	6.0	9.0	9.0
W 2145-11	07	00	00	83	3.1	7.8	7.1	9.2	9.2
W 2148-2	13	00	13	61	3.6	9.0	8.6	10.0	10.0
W 2152-2	00	07	00	79	2.8	9.7	10.0	10.0	10.0
W 2166-3	13	00	00	75	4.0	9.5	10.0	10.0	10.0
W 2192-2	00	00	07	72	3.8	9.8	9.9	10.0	10.0
W 2203-2	00	00	07	87	3.1	8.4	8.5	10.0	10.0
W 2216-1	00	00	00	81	3.2	10.0	10.0	10.0	10.0
W 2216-2	13	00	13	63	3.8	7.6	7.5	9.4	9.4
W 2217-1	07	00	00	84	3.3	6.0	5.6	8.2	8.2
W 2225-2	00	00	00	69	3.7	5.0	5.2	8.8	8.8
W 2238-1	00	00	00	67	3.7	6.5	5.7	9.1	9.1
W 2242-1	00	00	07	68	3.0	4.0	4.0	8.2	8.2
DRNorland	00	00	07	59	6.2	4.9	4.8	8.0	8.0
W 1874-1R	00	00	13	67	4.0	5.5	5.1	9.3	9.3
W 2186-4R	00	00	07	57	5.1	9.4	9.1	9.9	9.9
W2275-14R	00	00	07	55	5.4	9.2	9.2	10.0	10.0
Average	04	01	07	75	3.8	6.4	6.1	8.9	8.9

Int. Defects %: HH=hollow heart; IBS=internal brown spot; VD=vascular discoloration. SpGv: specific gravity $\times 1000$; Chip Color: Rev = reversion, 3m = 3 month storage at 40F (D=direct, R = reconditioned 14 days at 65F), 6m = 6 month storage at 40F (D=direct, R = reconditioned 14 days at 65F). Visual scores in CPII scale (1=light, 10=dark).

Wisconsin Table 5. Advanced Selection Trial 2, Rhinelander 2000 (101 days).

Cultivar	Cwt/A		Vines			Tubers		
	Tot	A's	Vmt	Vig	EBt	Skg	TbU	Scb
Snowden	398	362	5.8	5.3	7.0	8.0	8.3	8.2
Atlantic	381	346	5.3	5.5	6.5	8.7	8.3	8.0
NorValley	310	269	4.7	4.8	3.7	9.0	9.0	8.0
Dak.Pearl	202	185	5.3	4.3	6.0	8.7	9.0	8.7
W 2327-1	331	307	4.3	4.5	4.7	8.3	8.0	8.7
W 1904-3	331	296	5.3	4.8	7.0	5.7	8.0	7.3
W 1905-2	363	320	5.8	6.0	8.2	7.0	8.0	5.8
W 1949-1	369	346	5.0	5.3	6.0	7.3	8.3	8.3
W 1980-4	284	218	4.2	5.3	5.7	7.3	7.7	7.0
W 2033-8	256	211	4.7	5.0	4.3	8.7	8.7	9.0
W 2062-1	276	188	4.8	4.7	6.5	8.7	8.7	8.2
W 2269-1	253	239	2.3	3.7	1.3	9.0	9.0	8.3
W 2318-1	170	147	6.5	5.2	6.3	7.7	8.3	9.0
W 2319-3	438	402	7.2	6.3	7.2	8.3	8.3	7.0
W 2319-4	341	315	5.0	6.2	6.2	7.0	8.0	5.0
W 2319-6	292	255	6.0	6.0	5.5	7.0	7.8	8.0
W 2319-8	336	298	7.0	6.3	8.3	5.0	8.3	7.3
W 2320-1	294	255	6.2	5.0	7.2	7.0	8.0	8.7
W 2324-1	499	470	5.7	6.2	7.3	6.0	7.7	7.7
W 2326-1	204	184	4.0	4.2	3.8	9.0	8.0	8.8
W 2326-3	279	256	4.0	5.0	5.3	9.0	8.7	8.5
W 2020-4	281	243	4.8	4.8	3.0	9.0	8.7	8.7
RNorkotah	165	116	1.0	1.3	1.0	9.0	9.0	8.0
Goldrush	357	313	5.3	5.5	4.3	8.3	7.3	9.0
R.Burbank	339	262	5.5	5.2	6.2	7.8	7.3	9.0
W 2249-1r	274	189	6.3	4.7	7.7	9.0	8.7	7.7
W 2250-2r	198	148	4.3	4.3	2.7	8.7	8.3	6.7
W 2371-1r	237	215	6.0	4.7	6.5	6.7	8.6	6.9
DRNorland	300	248	3.0	3.5	1.7	9.0	8.5	8.8
W 2275-9R	266	224	4.8	5.2	5.3	9.0	8.7	7.9
Average	301	261	5.0	5.0	5.4	8.0	8.3	7.9

Tot = Total yield, A's = A size (>1"7/8 tubers) yield; Vmt: Vine maturity (1=early, 9=late); Vig: Vine vigor (1=weak, 9=vigorous); EBt: Early blight (1=very susceptible, 9=none); Skg: Skinning (9 = no skinning); TbU: Tuber shape uniformity (9=very uniform); Scb: Scab (1=very susceptible, 9=none).

Wisconsin Table 6. Advanced Selection Trial 2, Rhinelander 2000 (101 days).

Cultivar	Int.Defects %			SpGv	Chip Color				
	HH	IBS	VD		Rev	3mD	3mR	6mD	6mR
Snowden	20	00	07	84	3.7	5.2	5.2	7.4	3.9
Atlantic	27	00	00	89	3.4	5.6	6.1	9.4	8.0
NorValley	00	00	07	72	3.2	4.3	4.2	8.1	7.4
Dak.Pearl	00	00	20	77	2.8	3.6	3.2	6.3	4.7
W 2327-1	27	07	07	72	3.2	3.7	4.4	7.8	4.6
W 1904-3	00	00	00	85	2.6	4.7	3.3	7.3	6.3
W 1905-2	08	00	27	89	2.5	3.5	3.3	6.6	3.9
W 1949-1	00	07	00	83	2.3	5.8	5.9	8.7	7.4
W 1980-4	07	00	27	87	2.7	2.9	3.9	7.6	6.4
W 2033-8	00	00	00	79	4.4	7.7	7.9	9.9	6.9
W 2062-1	00	00	13	88	3.0	4.1	3.6	7.8	6.0
W 2269-1	60	00	07	64	4.7	8.4	9.6	9.9	9.6
W 2318-1	27	00	00	79	3.1	3.5	3.0	6.2	3.1
W 2319-3	00	00	00	77	3.1	5.6	7.5	9.3	5.3
W 2319-4	07	00	07	81	3.0	3.4	3.6	7.9	3.9
W 2319-6	13	00	13	70	3.7	7.1	5.0	9.6	5.2
W 2319-8	99	00	00	73	3.1	5.7	4.8	7.8	5.2
W 2320-1	00	00	13	86	3.0	4.7	4.5	8.4	6.5
W 2324-1	00	00	13	85	3.0	5.9	4.4	7.9	6.1
W 2326-1	00	00	20	80	3.6	7.4	7.6	9.5	7.7
W 2326-3	27	00	13	72	3.1	8.1	7.7	9.7	6.9
W 2020-4	00	00	07	71	2.9	5.4	6.6	9.3	8.5
Norkotah	00	00	00	63	6.9	9.9	9.9	9.9	9.7
Goldrush	00	00	07	63	6.9	9.9	9.7	9.9	9.9
R.Burbank	07	00	07	71	6.4	9.1	8.8	9.7	9.6
W 2249-1r	07	00	00	76	6.7	8.5	9.3	9.9	9.9
W 2250-2r	27	00	00	67	6.4	8.4	9.5	9.4	9.7
W 2371-1r	00	00	07	69	7.3	9.3	9.7	9.9	9.9
DRNorland	00	00	20	55	6.4	9.9	9.9	9.9	9.9
W 2275-9R	00	00	00	69	6.5	9.9	9.9	9.9	9.9
Average	12	00	08	76	4.1	6.4	6.4	8.7	7.1

Int. Defects %: HH=hollow heart; IBS=internal brown spot; VD=vascular discoloration. SpGv: specific gravity -1×1000 ; Chip Color: Rev = reversion, 3m = 3 month storage at 40F (D=direct, R = reconditioned 14 days at 65F), 6m = 6 month storage at 40F (D=direct, R = reconditioned 14 days at 65F). Visual scores in CPII scale (1=light, 10=dark).

Wisconsin Table 7. Advanced Selection Trial 1, Hancock, 2000 (125 days). Excerpt from a 50 entry trial.

Cultivar	Yield		Vines			Tubers			
	Tot	A's	VMt	Vig	EBt	TbS	TbU	Scb	Pref
Superior	526	475	5.0	5.5	7.3	3.7	8.0	9.0	1.9
Snowden	612	591	5.2	6.2	6.5	3.0	7.7	8.7	1.9
Atlantic	624	581	6.8	5.5	8.3	3.0	8.9	9.0	2.5
NorValley	568	502	4.7	5.2	6.8	4.0	7.9	9.0	2.0
Dak.Pearl	270	232	5.3	4.5	7.3	2.3	9.0	9.0	1.9
W 1201	553	504	6.0	6.0	7.7	3.0	9.0	9.0	2.0
W 2114-4	488	440	4.7	4.7	5.0	3.0	8.7	9.0	2.0
W 2114-5	508	473	5.5	4.3	5.8	3.0	9.0	9.0	2.1
W 2126-1	490	455	4.8	4.7	7.0	3.7	9.0	9.0	2.1
W 2127-9	512	483	4.7	4.7	6.2	2.7	9.0	6.0	1.6
W 2128-8	633	575	6.0	6.0	7.2	3.7	7.3	9.0	1.3
W 2132-1	513	461	6.0	4.8	7.2	4.3	9.0	9.0	2.1
W 2132-2	545	518	5.3	5.0	7.2	3.0	8.7	9.0	2.0
W 2133-1	565	528	5.2	4.7	6.2	3.0	9.0	9.0	2.2
W 2143-1	621	582	6.5	6.2	8.0	3.3	8.3	9.0	1.9
W 2145-6	539	506	5.3	5.0	6.7	3.0	9.0	9.0	2.1
W 2145-11	486	458	5.3	4.7	6.7	3.0	8.7	8.3	1.9
W 2148-2	553	515	4.8	4.7	5.7	2.3	9.0	9.0	2.1
W 2152-2	523	484	4.8	4.7	6.3	3.0	9.0	9.0	1.9
W 2154-1	524	467	5.7	4.5	6.8	3.7	8.7	9.0	2.0
W 2166-3	575	519	6.3	5.5	7.7	3.3	8.5	9.0	1.7
W 2192-2	556	516	6.0	4.0	6.5	3.3	8.3	9.0	2.0
W 2216-1	519	433	7.5	6.5	8.3	4.0	8.3	9.0	1.7
W 2217-1	568	495	7.5	6.5	8.0	4.3	8.0	9.0	1.9
W 2217-6	501	468	5.3	4.0	6.5	2.3	8.7	9.0	2.1
W 2223-3	490	441	5.0	4.8	6.2	4.3	8.3	9.0	1.9
W 2225-2	577	507	5.7	4.3	6.0	3.3	8.0	9.0	1.6
W 2233-2	585	551	5.7	5.8	6.8	3.0	9.0	9.0	2.6
W 2238-1	671	650	6.2	5.5	7.0	3.7	8.3	9.0	2.0
W 2242-1	544	501	5.0	4.3	6.2	4.0	8.0	9.0	2.1
DRNorland	500	463	5.5	4.5	4.8	3.3	8.7	9.0	1.6
W 1874-1R	604	545	6.7	5.3	7.3	1.0	9.0	9.0	2.0
W 2155-1R	560	512	5.0	4.3	6.0	2.3	8.0	9.0	1.4
W 2169-1R	499	475	6.0	5.2	6.5	2.0	9.0	9.0	2.2
W 2186-4R	610	544	5.0	5.7	6.5	3.7	8.7	9.0	1.9
W 2275-3R	616	558	6.5	5.2	6.2	1.7	8.7	9.0	2.0
Average	541	497	5.6	5.1	6.7	3.1	8.6	8.9	1.9

Tot = Total yield (cwt/A); A's: A size (>1 7/8" tubers) yield (cwt/A); VMt: Vine maturity (1=early, 9=late); Vig: Vine vigor (1=weak, 9=vigorous); EBt: Early blight (9 none); TbS: Tuber shape (1=round, 5= oval, 9=long); TbU: Tuber shape uniformity (9=very uniform); Scb: Scab (1=very susceptible, 9=none); Pref: Preference (1= undesirable tubers, 2=acceptable tubers, 3=good tuber traits, 4= very good tuber traits).

Wisconsin Table 8. Advanced Selection Trial 1, Hancock 2000
(125). Excerpt from a 50 entry trial.

Cultivar	SpGv	Chip Color					Int.Def.%		
		Rev	3mD	3mR	6mD	6mR	HH	IBS	VD
Superior	76	5.9	8.8	8.0	9.8	9.8	00	07	13
Snowden	82	3.7	5.3	5.2	7.8	4.9	07	00	00
Atlantic	86	4.8	6.7	6.9	9.3	9.7	53	53	00
NorValley	75	3.5	4.5	5.0	7.9	7.8	07	00	07
Dak.Pearl	74	3.3	3.9	4.1	7.4	6.6	40	07	07
W 1201	84	3.6	6.3	6.2	9.5	9.3	00	07	00
W 2114-4	62	6.9	9.2	9.3	9.9	9.9	00	20	00
W 2114-5	80	3.7	6.3	6.9	9.3	7.7	00	00	00
W 2126-1	86	4.7	6.1	6.9	9.3	8.4	00	13	00
W 2127-9	75	3.6	5.3	6.0	9.5	8.4	40	00	00
W 2128-8	91	3.5	3.8	4.3	7.3	8.3	00	00	00
W 2132-1	88	5.6	6.4	7.3	8.8	9.1	00	13	00
W 2132-2	81	7.4	8.7	8.6	9.9	9.4	00	00	00
W 2133-1	79	5.0	6.7	5.8	8.1	6.9	00	00	00
W 2143-1	84	5.6	5.8	6.0	9.1	8.0	40	00	00
W 2145-6	98	4.5	6.3	6.4	8.8	7.2	00	00	00
W 2145-11	95	4.7	6.8	8.1	9.3	7.7	07	00	00
W 2148-2	73	6.0	6.1	7.5	9.9	9.4	00	00	00
W 2152-2	81	4.4	5.7	6.5	9.6	8.9	00	53	00
W 2154-1	90	3.4	3.2	3.3	6.5	6.6	13	00	00
W 2166-3	77	5.7	6.2	6.8	9.9	9.1	07	47	00
W 2192-2	70	6.6	7.8	7.6	9.4	9.9	00	00	00
W 2216-1	82	3.9	5.0	6.2	9.0	9.7	00	00	00
W 2217-1	81	4.4	6.5	7.3	9.6	9.4	00	00	00
W 2217-6	68	6.3	8.3	8.1	9.5	9.4	00	40	00
W 2223-3	75	5.3	7.8	8.3	9.1	8.9	00	07	00
W 2225-2	70	5.9	7.6	8.7	9.9	9.9	00	00	00
W 2233-2	77	4.2	5.9	6.2	8.3	7.9	07	00	00
W 2238-1	71	6.9	9.9	9.9	9.9	9.9	00	00	00
W 2242-1	67	5.6	7.5	8.3	9.9	9.9	20	00	00
DRNorland	58	8.4	9.9	9.9	9.9	9.9	00	00	00
W 1874-1R	69	6.9	9.9	9.7	9.9	9.9	00	00	00
W 2155-1R	67	7.7	9.8	9.3	9.9	9.9	00	00	00
W 2169-1R	67	8.1	9.9	9.9	9.9	9.9	00	00	07
W 2186-4R	63	7.8	9.7	9.5	9.9	9.9	00	07	00
W 2275-3R	55	7.4	9.9	9.8	9.9	9.9	00	00	00
Average	77	5.4	7.0	7.3	9.2	8.8	07	08	01

SpGv: Specific Gravity -1×1000 ; Chip Color: Rev = Reversion, 3m = 3 month storage at 40F (D=direct, R = reconditioned 14 days at 65F), 6m = 6 month storage at 40F (D=direct, R = reconditioned 14 days at 65F). Visual scores in CPII scale (1=light, 10=dark). Int.Def.%, Internal Defects: HH=hollow heart; IBS=internal brown spot; VD=vascular discoloration.

Wisconsin Table 9. Advanced Selection Trial 2, Hancock, 2000 (125 days).

Cultivar	Yield		Vines			Tubers			Pref
	Tot	A's	VMt	Vig	EBt	TbS	TbU	Scb	
Snowden	532	496	5.3	6.2	5.7	3.0	8.0	8.7	1.7
Atlantic	602	566	6.3	5.8	7.5	3.0	8.7	9.0	2.3
NorValley	539	503	4.8	5.7	6.5	3.7	8.3	8.9	2.0
Dak.Pearl	259	215	5.2	4.3	6.3	1.7	8.3	9.0	1.7
W 2327-1	526	466	4.7	4.2	5.7	3.7	8.0	8.9	2.1
W 1904-3	495	468	5.5	4.5	6.5	3.3	8.7	9.0	2.0
W 1905-2	476	455	7.2	6.3	8.3	3.0	8.3	7.3	1.7
W 1949-1	457	419	5.3	5.7	5.3	3.7	8.7	8.8	2.0
W 1980-4	532	458	5.5	6.2	6.7	4.0	8.3	8.3	1.8
W 2033-8	613	580	6.0	5.3	6.5	4.0	8.7	9.0	2.1
W 2062-1	641	613	5.5	5.3	7.0	3.0	8.7	9.0	2.0
W 2269-1	457	400	5.2	5.0	4.3	3.7	8.7	9.0	2.0
W 2318-1	331	309	6.0	5.5	6.7	3.0	9.0	9.0	1.3
W 2319-3	613	572	6.8	6.8	7.5	4.0	9.0	9.0	2.1
W 2319-4	516	496	5.5	5.8	6.3	3.3	9.0	8.2	2.0
W 2319-6	472	442	5.3	5.5	5.3	3.3	8.7	8.6	1.9
W 2319-8	492	318	6.5	6.3	6.5	3.0	8.3	8.7	1.4
W 2320-1	479	435	5.2	5.5	6.5	3.3	8.0	8.6	1.8
W 2324-1	752	707	6.0	6.8	7.0	3.0	8.3	9.0	1.9
W 2326-1	406	374	5.7	5.0	5.8	4.3	7.3	9.0	1.8
W 2326-3	518	485	5.0	5.7	6.8	3.3	9.0	9.0	2.2
W 2020-4	360	338	4.7	4.5	4.2	3.0	8.7	9.0	2.1
Norkotah	266	238	5.2	4.3	4.2	7.0	8.7	8.7	2.0
Goldrush	454	414	5.5	5.3	5.3	7.0	6.7	9.0	1.9
R.Burbank	604	522	6.3	6.2	7.5	9.0	6.0	9.0	1.9
W2249-1ru	639	599	6.8	6.0	7.3	9.0	9.0	9.0	2.1
W2250-2ru	398	338	4.7	5.3	5.2	9.0	9.0	8.0	1.2
W2371-1ru	597	547	5.8	5.7	7.0	9.0	8.0	9.0	2.0
DKNorland	456	407	4.8	4.5	3.2	2.3	8.7	9.0	1.7
W 2275-9R	536	491	6.2	5.0	6.5	2.3	8.3	9.0	2.0
Average	501	456	5.6	5.5	6.2	4.3	8.4	8.8	1.9

Tot = Total yield in cwt/A; A's = A size (>1"7/8 tubers) yield in cwt/A; VMt: Vine maturity (1=early, 9=late); Vig: Vine vigor (1=weak, 9=vigorous); EBt: Early blight (1=very susceptible, 9=none); TbS: Tuber Shape (1=round, 5=oval, 9=long); TbU: Tuber shape uniformity (9=very uniform); Pref: Preference, general rating (1=not desired, 2=acceptable, 3=good, 4=very good).

Wisconsin Table 10. Advanced Selection Trial 2, Hancock, 2000 (125 days).

Cultivar	SpGv	Chip Color					Int.Defects %		
		Rev	3mD	3mR	6mD	6mR	HH	IBS	VD
Snowden	83	3.4	7.2	6.2	8.7	8.7	07	07	13
Atlantic	88	4.7	7.4	7.0	9.8	9.8	26	13	00
NorValley	73	3.4	6.0	5.2	8.0	8.0	00	00	00
Dak.Pearl	68	3.4	4.7	4.5	7.5	7.5	53	00	00
W 2327-1	62	3.2	5.4	6.0	8.5	8.5	10	00	00
W 1904-3	80	3.6	5.9	4.9	8.5	8.5	00	00	00
W 1905-2	89	3.3	6.8	5.2	7.9	7.9	07	07	00
W 1949-1	84	3.4	6.9	6.7	8.9	8.9	00	00	00
W 1980-4	91	3.5	5.0	4.4	7.8	7.8	00	00	00
W 2033-8	84	5.8	8.9	7.8	9.7	9.7	07	00	00
W 2062-1	87	4.2	5.9	6.6	8.8	8.8	13	00	00
W 2269-1	66	4.9	9.5	9.1	9.9	9.9	20	00	00
W 2318-1	80	3.2	5.1	3.4	6.8	6.8	60	00	00
W 2319-3	73	4.6	9.1	9.7	9.9	9.9	33	00	07
W 2319-4	86	3.4	5.1	5.1	8.6	8.6	00	00	00
W 2319-6	71	3.4	7.8	6.7	9.8	9.8	07	00	00
W 2319-8	70	3.5	6.3	5.2	8.4	8.4	47	00	00
W 2320-1	89	3.3	7.3	7.4	9.1	9.1	07	00	00
W 2324-1	86	4.0	6.5	6.0	8.5	8.5	00	00	00
W 2326-1	83	4.1	9.6	8.3	9.9	9.9	00	00	00
W 2326-3	76	3.5	8.6	7.3	9.5	9.5	20	00	00
W 2020-4	68	4.7	8.7	7.9	9.7	9.7	00	00	00
Norkotah	62	7.2	9.9	9.7	9.9	9.9	07	00	00
Goldrush	68	7.2	9.9	8.9	9.9	9.9	00	00	00
RBurbank	76	7.5	9.9	9.9	9.9	9.9	07	00	00
W2249-1ru	71	7.7	9.9	9.9	9.9	9.9	87	00	00
W2250-2ru	70	6.8	9.2	9.0	9.9	9.9	73	00	00
W2371-1ru	70	7.1	9.8	8.8	9.9	9.9	13	00	00
DKNorland	60	6.8	9.9	9.9	9.9	9.9	00	00	07
W 2275-9R	65	8.3	9.9	9.9	9.9	9.9	00	00	00
Average	76	4.8	7.8	8.1	9.1	9.1	17	01	01

SpGv: Specific Gravity -1×1000 ; Chip Color: Rev = Reversion, 3m or 6m = 3 or 6 month storage at 40F (D=direct, R = reconditioned 14 days at 65F). Rating scores in CPII scale (1=light, 10=dark). Int.Def.%, Internal Defects: HH=hollow heart; IBS=internal brown spot; VD=vascular discoloration.

Wisconsin Table 11. North Central Regional Trial, Hancock, 2000 (125 days).

Cultivar	Cwt/A		Vines			Chip Color			Observations
	Tot	A's	VMt	Vig	EBt	Rev	3mD	3mR	
Atlantic	566	535	6.1	5.5	7.1	6.3	6.2	7.0	big,dpbdend
Snowden	521	488	5.6	6.3	6.5	4.0	5.8	5.9	rgh,Rhi,mdsze
NorValley	565	506	5.1	5.8	6.6	4.0	7.4	7.7	smth,Rhi,pear
R.Pontiac	708	649	7.3	6.1	7.9	9.3	7.4	7.7	dpeye,rgh,pale
DKNorland	473	446	5.4	4.6	4.6	8.3	7.4	7.7	pale,dpeye
RNorkotah	523	459	5.9	4.5	6.4	9.2	7.3	8.0	v.nice,varsze
RBurbank	578	457	6.9	6.0	8.1	7.6	7.7	8.0	big,ptd,dumpbll
AO87277-6	576	536	6.9	7.1	7.6	6.8	7.7	8.0	mshpe,big,smth
MSA 091-1	498	474	6.0	5.3	6.6	5.5	7.7	8.0	rgh,Rhi,big
MSB 107-1	688	668	6.5	5.0	7.6	6.0	10.0	10.0	big,rgh,proeye
MSE 018-1	608	582	7.5	7.0	8.1	6.1	8.8	8.7	nice,varsze
MSF 737-8	526	513	6.0	6.1	7.0	6.4	8.8	8.7	dpeye,big
MN17989R	483	425	6.3	5.9	6.9	8.3	8.8	8.7	dkcol,big
MN17993R	519	502	6.8	5.9	7.3	5.4	8.8	8.7	dkcol,big,nice
MN18365R	311	269	5.1	4.4	4.4	8.2	9.5	9.2	dkcol,mdsze
MN18713ru	541	485	6.9	6.6	7.5	5.9	9.5	9.2	nice,mdsml1
ND3196R	494	465	6.5	6.4	7.3	8.2	9.5	9.2	gdcol,vdpeye
ND3574-5R	555	531	4.9	5.0	5.8	9.2	9.5	9.0	dkcol,mdsze
ND4093-4r	435	399	6.3	4.3	7.1	6.9	8.3	8.1	nice
W1355-1	465	441	5.5	5.9	6.4	3.3	8.3	8.1	smth, Rhi
W1368	461	437	5.1	5.0	6.0	4.1	8.3	8.1	sml1, too oval
W1386	618	584	6.0	5.6	7.4	4.9	8.3	8.1	big,Rhi,Itcls
W1431	596	583	6.9	5.9	6.9	3.3	7.6	6.8	gdsze,flat,nice
V0123-25	422	404	5.1	4.5	4.9	3.2	7.6	6.8	sml1,smth
V0056-1	517	484	5.3	5.0	6.8	3.5	7.6	6.8	mdsml1,Rhi,rus
V0024-6	635	609	6.5	5.4	7.6	6.5	7.0	5.8	big,smth,dpbud
V0168-3ru	523	477	5.0	5.0	5.6	8.6	7.4	7.4	wide,mdsze,Rhi
Amandine	432	360	5.4	5.5	5.1	9.1	7.4	7.4	htsprts,yellfsh
Marine	493	454	5.8	5.1	5.9	9.3	7.4	7.4	big,ptd,rusttg
Sandy	686	652	8.8	7.1	9.0	5.1	6.7	6.9	dpeye
Average	534	496	6.1	5.6	6.7	6.4	8.0	7.9	

Tot = Total yield, A's = A size (>1"7/8 tubers) yield; VMt: Vine maturity (1=early, 9=late); Vig:Vine Vigor (1=weak; 9=vigorous) EBt: Early blight (1=very susceptible, 9=none). Chip color: Rev = Reversion, 3m = after three month storage at 40F, processed directly (D) or with reconditioning (R), respectively; visual score (CPII scale: 1=light, 10=dark).

Wisconsin Table 12. North Central Regional Trial, Hancock, 2000
(125 days).

Cultivar	Tuber Appearance						SpGv	Rank
	TbS	TbU	Skg	Rot%	Scb%	Pref		
Atlantic	3.0	8.0	8.3	2.0	0.5	2.0	87	4chip
Snowden	3.3	8.0	9.0	0.0	0.1	2.0	91	
NorValley	3.0	7.8	9.0	3.3	0.3	2.0	76	
Red Pontiac	4.0	6.5	7.5	2.1	0.5	1.0	65	
Dk.Red Norland	3.8	8.0	9.0	0.2	0.1	1.8	66	
Russ. Norkotah	7.0	8.8	9.0	3.6	0.1	2.2	71	2rus
Russet Burbank	9.0	5.8	8.8	1.7	0.0	1.3	80	
AO 87277-6 rus	9.0	8.0	8.8	2.5	0.1	2.1	82	3rus
MSA 091-1	4.5	7.5	9.0	0.0	0.0	1.9	88	
MSB 107-1	3.0	9.0	7.0	0.6	0.3	2.2	80	2chip
MSE 018-1	4.5	8.5	8.0	0.4	0.0	2.2	91	1chip
MSF 737-8	3.3	8.5	9.0	0.2	0.3	2.0	80	
MN 17989 R	5.0	8.8	7.3	2.5	0.1	2.0	74	
MN 17993 R	3.5	9.0	6.5	1.8	0.1	2.1	71	2Red
MN 18365 R	4.0	9.0	9.0	1.8	0.6	2.1	65	1Red
MN 18713 rus	7.0	8.3	9.0	2.0	0.1	2.0	89	4rus
ND 3196 R	3.0	8.3	6.5	1.6	0.4	2.0	76	
ND 3574-5 R	4.5	8.8	7.4	0.0	0.3	2.0	63	3Red
ND 4093-4 rus	7.0	8.8	8.8	2.5	0.1	2.3	75	1rus
W 1355-1	3.5	8.5	9.0	0.2	0.0	2.0	81	
W 1368	4.0	8.8	8.8	0.1	0.0	2.0	81	
W 1386	3.8	8.3	9.0	0.7	0.4	2.0	84	
W 1431	3.0	8.8	8.5	0.3	0.0	2.2	84	3chip
V 0123-25	4.5	8.8	9.0	0.3	0.1	2.0	78	
V 0056-1	3.0	8.8	9.0	1.1	1.1	2.0	69	
V 0024-6	3.5	8.3	9.0	0.6	0.0	2.0	72	
V 0168-3 rus	6.8	7.9	8.3	1.6	0.0	2.0	67	
Amandine	9.0	8.3	9.0	0.3	0.1	2.0	59	
Marine	6.0	8.0	9.0	1.4	0.4	2.0	62	
Sandy	2.5	8.8	9.0	0.1	0.0	2.0	97	
Average	4.7	8.3	8.5	1.2	0.2	2.0	77	

TbS: Tuber Shape (1=round, 5=oval, 9=long); TbU: Tuber shape uniformity (9=very uniform); Skg: Tuber skinning (9=none); Rot%: soft rot (frequency of rotten tubers); Scb% (frequency of common scab on tubers); Pref: Preference, general rating (1=not desired, 2=acceptable, 3=good, 4=very good); SpGv: Specific gravity - 1 x 1000; Rank: based on tuber appearance (within the use category).

Wisconsin Table 13. Intensity of common scab on advanced selections.

Cultivar	Avg	StDv	Range	Cultivar	Avg	StDv	Range
W1817-4ru	8.7	0.6	8.0-9.0	W1811-1	4.7	3.5	1.0-8.0
W1836-3ru	8.5	0.9	7.5-9.0	W2062-1	4.7	3.5	1.0-8.0
W1443	8.0	1.7	6.0-9.0	W2326-3	4.7	3.5	1.0-8.0
W1879-1ru	8.0	1.0	7.0-9.0	W1904-3	4.3	2.1	2.0-6.0
W1201	7.0	2.0	5.0-9.0	W2324-1	4.3	2.1	2.0-6.0
W1431	6.7	3.2	3.0-9.0	W1812-22	4.0	4.4	1.0-9.0
W1769-7	6.7	2.1	5.0-9.0	W2318-1	4.0	2.6	1.0-6.0
W2320-1	6.7	2.5	4.0-9.0	W2326-1	4.0	1.7	2.0-5.0
W1386	6.3	2.5	4.0-9.0	W2371-1ru	4.0	3.0	1.0-7.0
W1773-3	6.3	2.5	4.0-9.0	W1368	3.7	4.6	1.0-9.0
W1839-3ru	6.3	2.5	4.0-9.0	W1782-5	3.7	4.6	1.0-9.0
W1949-1	6.3	2.3	5.0-9.0	W2033-8	3.7	1.5	2.0-5.0
W2319-3	6.3	2.3	5.0-9.0	Snowden	3.7	3.8	1.0-8.0
Superior	6.3	1.2	5.0-7.0	Norkotah	3.7	0.6	3.0-4.0
DRNorland	6.2	1.9	4.0-7.5	RBurbank	3.7	2.5	1.0-6.0
W1355-1	6.0	3.0	3.0-9.0	W2249-1ru	3.0	2.0	1.0-5.0
W1874-1R	5.7	2.1	4.0-8.0	W2250-2ru	2.7	1.5	1.0-4.0
W1773-3	5.3	3.2	3.0-9.0	W2319-4	2.3	1.5	1.0-4.0
W1876-1ru	5.3	2.5	3.0-8.0	W2319-8	2.0	1.7	1.0-4.0
W1980-4	5.3	1.5	4.0-7.0	W2269-1	1.7	1.2	1.0-3.0
W1952-1R	5.2	3.3	2.0-8.5	W1905-2	1.0	0.0	1.0-1.0
W2275-9R	5.0	0.0	5.0-5.0	Rus avg	5.8	1.8	1.0-9.0
W2020-4	4.8	3.3	1.0-7.0	Chips avg	4.6	2.5	1.0-9.0
W2319-6	4.8	3.5	1.0-8.0	Red avg	5.3	1.8	2.0-8.0

Common scab was rated in a naturally heavy infected soil. Maximum intensity (% of tuber surface) was scored on a scale of 1-9 (9 = 0-5% intensity; 1 = 80-100% intensity).

